

**CHANGE**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

7110.10N CHG 2

9/25/00

**SUBJ: FLIGHT SERVICES**

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- 1. PURPOSE.** This change transmits revised pages to Order 7110.10N, Flight Services, and the Briefing Guide.
- 2. DISTRIBUTION.** This change is distributed to selected offices in Washington headquarters, regional offices, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, and air traffic field offices and facilities.
- 3. EFFECTIVE DATE.** January 25, 2001.
- 4. EXPLANATION OF CHANGES.** See the Explanation of Changes attachment.
- 5. DISPOSITION OF TRANSMITTAL.** Retain this transmittal until superseded by a new basic order.
- 6. PAGE CONTROL CHART.** See the Page Control Chart attachment.

~ SIGNED ~

Ronald E. Morgan  
Director of Air Traffic

Date: 9/25/00

## **EXPLANATION OF CHANGES**

**Direct questions through appropriate facility/region staff to the  
Office of Primary Interest (OPI)**

### **a. 4-3-5. ROUTINE RADIO CONTACTS**

Corrects errors in TBL 4-3-1, Millibar Conversion Chart.

### **b. 9-2-15. PIREP FORMAT**

Subpara 9-2-15f1 and f3 Examples. Inserts a space between the slant and SKC. The entry allows the computer to interpret the SKC as a contraction, and not as a second /SK TEL.

### **c. 9-2-15. PIREP FORMAT**

In TBL 9-2-1, Weather Type and Symbols, changes symbol for Ice Pellets/Showers to conform with National Weather Services' Federal Meteorological Handbook.

d. Editorial/format changes were made where necessary. Revision bars were not used due to the insignificant nature of the changes. (ATA-10)

**PAGE CONTROL CHART****7110.10N CHG 2****January 25, 2001**

REMOVE PAGES	DATED	INSERT PAGES	DATED
4-3-3 .....	2/24/00	4-3-3 .....	1/25/01
4-3-4 .....	2/24/00	4-3-4 .....	2/24/00
4-5-1 and 4-5-2 .....	2/24/00	4-5-1 and 4-5-2 .....	1/25/01
5-2-1 thru 5-2-5 .....	2/24/00	5-2-1 thru 5-2-5 .....	1/25/01
6-5-3 .....	2/24/00	6-5-3 .....	1/25/01
9-2-3 and 9-2-4 .....	2/24/00	9-2-3 and 9-2-4 .....	1/25/01
13-1-1 .....	2/24/00	13-1-1 .....	1/25/01
13-1-2 .....	2/24/00	13-1-2 .....	2/24/00
PCG-1 .....	2/24/00	PCG-1 .....	1/25/01
PCG A-1 thru PCG A-10 .....	2/24/00	PCG A-1 thru PCG A-10 .....	1/25/01
PCG A-11 .....	2/24/00	PCG A-11 .....	2/24/00
PCG A-12 thru PCG A-14 .....	2/24/00	PCG A-12 thru PCG A-14 .....	1/25/01
PCG C-1 thru PCG C-4 .....	2/24/00	PCG C-1 thru PCG C-4 .....	1/25/01
PCG C-7 .....	2/24/00	PCG C-7 .....	2/24/00
PCG C-8 .....	2/24/00	PCG C-8 .....	1/25/01
PCG D-3 and PCG D-4 .....	2/24/00	PCG D-3 and PCG D-4 .....	1/25/01
PCG E-1 and PCG E-2 .....	2/24/00	PCG E-1 and PCG E-2 .....	1/25/01
PCG F-3 .....	2/24/00	PCG F-3 .....	1/25/01
PCG F-4 .....	2/24/00	PCG F-4 .....	2/24/00
PCG G-1 .....	2/24/00	PCG G-1 .....	1/25/01
PCG G-2 .....	2/24/00	PCG G-2 .....	2/24/00
PCG I-1 .....	2/24/00	PCG I-1 .....	2/24/00
PCG I-2 and PCG I-3 .....	2/24/00	PCG I-2 and PCG I-3 .....	1/25/01
PCG I-4 .....	2/24/00	PCG I-4 .....	2/24/00
PCG L-1 .....	2/24/00	PCG L-1 .....	1/25/01
PCG L-2 .....	2/24/00	PCG L-2 .....	2/24/00
PCG M-1 thru PCG M-4 .....	2/24/00	PCG M-1 thru PCG M-4 .....	1/25/01
PCG O-1 .....	2/24/00	PCG O-1 .....	2/24/00
PCG O-2 .....	2/24/00	PCG O-2 .....	1/25/01
PCG T-5 and PCG T-6 .....	2/24/00	PCG T-5 and PCG T-6 .....	1/25/01
PCG W-1 .....	2/24/00	PCG W-1 .....	1/25/01

f. *Altimeter Setting in Millibars.* If a request for the altimeter setting in millibars is received, use the setting for the location nearest the position of the aircraft and convert to the millibar equivalent value using the

millibar conversion chart. If the millibar setting is not a whole number, always round down.  
(See TBL 4-3-1.)

### Millibar Conversion Chart

MILLIBAR CONVERSION CHART															
inches	millibars	inches	millibars	inches	millibars	inches	millibars	inches	millibars	inches	millibars	inches	millibars	inches	millibars
27.50	931.3	28.00	948.2	28.50	965.1	29.00	982.1	29.50	999.0	30.00	1015.9	30.50	1032.8	31.00	1049.8
27.51	931.6	28.01	948.5	28.51	965.5	29.01	982.4	29.51	999.3	30.01	1016.3	30.51	1033.2	31.01	1050.1
27.52	931.9	28.02	948.9	28.52	965.8	29.02	982.7	29.52	999.7	30.02	1016.6	30.52	1033.5	31.02	1050.5
27.53	932.3	28.03	949.2	28.53	966.1	29.03	983.1	29.53	1000.0	30.03	1016.9	30.53	1033.9	31.03	1050.8
27.54	932.6	28.04	949.5	28.54	966.5	29.04	983.4	29.54	1000.3	30.04	1017.3	30.54	1034.2	31.04	1051.1
27.55	933.0	28.05	949.9	28.55	966.8	29.05	983.7	29.55	1000.7	30.05	1017.6	30.55	1034.5	31.05	1051.5
27.56	933.3	28.06	950.2	28.56	967.2	29.06	984.1	29.56	1001.0	30.06	1017.9	30.56	1034.9	31.06	1051.8
27.57	933.6	28.07	950.6	28.57	967.5	29.07	984.4	29.57	1001.4	30.07	1018.3	30.57	1035.2	31.07	1052.2
27.58	934.0	28.08	950.9	28.58	967.8	29.08	984.8	29.58	1001.7	30.08	1018.6	30.58	1035.6	31.08	1052.5
27.59	934.3	28.09	951.2	28.59	968.2	29.09	985.1	29.59	1002.0	30.09	1019.0	30.59	1035.9	31.09	1052.8
27.60	934.6	28.10	951.6	28.60	968.5	29.10	985.4	29.60	1002.4	30.10	1019.3	30.60	1036.2	31.10	1053.2
27.61	935.0	28.11	951.9	28.61	968.8	29.11	985.8	29.61	1002.7	30.11	1019.6	30.61	1036.6	31.11	1053.5
27.62	935.3	28.12	952.3	28.62	969.2	29.12	986.1	29.62	1003.0	30.12	1020.0	30.62	1036.9	31.12	1053.8
27.63	935.7	28.13	952.6	28.63	969.5	29.13	986.5	29.63	1003.4	30.13	1020.3	30.63	1037.3	31.13	1054.2
27.64	936.0	28.14	952.9	28.64	969.9	29.14	986.8	29.64	1003.7	30.14	1020.7	30.64	1037.6	31.14	1054.5
27.65	936.3	28.15	953.3	28.65	970.2	29.15	987.1	29.65	1004.1	30.15	1021.0	30.65	1037.9	31.15	1054.9
27.66	936.7	28.16	953.6	28.66	970.5	29.16	987.5	29.66	1004.4	30.16	1021.3	30.66	1038.3	31.16	1055.2
27.67	937.0	28.17	953.9	28.67	970.9	29.17	987.8	29.67	1004.7	30.17	1021.7	30.67	1038.6	31.17	1055.5
27.68	937.4	28.18	954.3	28.68	971.2	29.18	988.1	29.68	1005.1	30.18	1022.0	30.68	1038.9	31.18	1055.9
27.69	937.7	28.19	954.6	28.69	971.6	29.19	988.5	29.69	1005.4	30.19	1022.4	30.69	1039.3	31.19	1056.2
27.70	938.0	28.20	955.0	28.70	971.9	29.20	988.8	29.70	1005.8	30.20	1022.7	30.70	1039.6	31.20	1056.6
27.71	938.4	28.21	955.3	28.71	972.2	29.21	989.2	29.71	1006.1	30.21	1023.0	30.71	1040.0	31.21	1056.9
27.72	938.7	28.22	955.6	28.72	972.6	29.22	989.5	29.72	1006.4	30.22	1023.4	30.72	1040.3	31.22	1057.2
27.73	939.0	28.23	956.0	28.73	972.9	29.23	989.8	29.73	1006.8	30.23	1023.7	30.73	1040.6	31.23	1057.6
27.74	939.4	28.24	956.3	28.74	973.2	29.24	990.2	29.74	1007.1	30.24	1024.0	30.74	1041.0	31.24	1057.9
27.75	939.7	28.25	956.7	28.75	973.6	29.25	990.5	29.75	1007.5	30.25	1024.4	30.75	1041.3	31.25	1058.2
27.76	940.1	28.26	957.0	28.76	973.9	29.26	990.8	29.76	1007.8	30.26	1024.7	30.76	1041.6	31.26	1058.6
27.77	940.4	28.27	957.3	28.77	974.3	29.27	991.2	29.77	1008.1	30.27	1025.1	30.77	1042.0	31.27	1058.9
27.78	940.7	28.28	957.7	28.78	974.6	29.28	991.5	29.78	1008.5	30.28	1025.4	30.78	1042.3	31.28	1059.3
27.79	941.1	28.29	958.0	28.79	974.9	29.29	991.9	29.79	1008.8	30.29	1025.7	30.79	1042.7	31.29	1059.6
27.80	941.4	28.30	958.3	28.80	975.3	29.30	992.2	29.80	1009.1	30.30	1026.1	30.80	1043.0	31.30	1059.9
27.81	941.8	28.31	958.7	28.81	975.6	29.31	992.6	29.81	1009.5	30.31	1026.4	30.81	1043.3	31.31	1060.3
27.82	942.1	28.32	959.0	28.82	976.0	29.32	992.9	29.82	1009.8	30.32	1026.8	30.82	1043.7	31.32	1060.6
27.83	942.4	28.33	959.4	28.83	976.3	29.33	993.2	29.83	1010.2	30.33	1027.1	30.83	1044.0	31.33	1061.0
27.84	942.8	28.34	959.7	28.84	976.6	29.34	992.6	29.84	1010.5	30.34	1027.4	30.84	1044.4	31.34	1061.3
27.85	943.1	28.35	960.0	28.85	977.0	29.35	993.9	29.85	1010.8	30.35	1027.8	30.85	1044.7	31.35	1061.6
27.86	943.4	28.36	960.4	28.86	977.3	29.36	994.2	29.86	1011.2	30.36	1028.1	30.86	1045.0	31.36	1062.0
27.87	943.8	28.37	960.7	28.87	977.7	29.37	994.6	29.87	1011.5	30.37	1028.4	30.87	1045.4	31.37	1062.3
27.88	944.1	28.38	961.1	28.88	978.0	29.38	994.9	29.88	1011.9	30.38	1028.8	30.88	1045.7	31.38	1062.6
27.89	944.5	28.39	961.4	28.89	978.3	29.39	995.3	29.89	1012.2	30.39	1029.1	30.89	1046.1	31.39	1063.0
27.90	944.8	28.40	961.7	28.90	978.7	29.40	995.6	29.90	1012.5	30.40	1029.5	30.90	1046.4	31.40	1063.3
27.91	945.1	28.41	962.1	28.91	979.0	29.41	995.9	29.91	1012.9	30.41	1029.8	30.91	1046.7	31.41	1063.7
27.92	945.5	28.42	962.4	28.92	979.3	29.42	996.3	29.92	1013.2	30.42	1030.1	30.92	1047.1	31.42	1064.0
27.93	945.8	28.43	962.8	28.93	979.7	29.43	996.6	29.93	1013.5	30.43	1030.5	30.93	1047.4	31.43	1064.3
27.94	946.2	28.44	963.1	28.94	980.0	29.44	997.0	29.94	1013.9	30.44	1030.8	30.94	1047.7	31.44	1064.7
27.95	946.5	28.45	963.4	28.95	980.4	29.45	997.3	29.95	1014.2	30.45	1031.2	30.95	1048.1	31.45	1065.0
27.96	946.8	28.46	963.8	28.96	980.7	29.46	997.6	29.96	1014.6	30.46	1031.5	30.96	1048.4	31.46	1065.4
27.97	947.2	28.47	964.1	28.97	981.0	29.47	998.0	29.97	1014.9	30.47	1031.8	30.97	1048.8	31.47	1065.7
27.98	947.5	28.48	964.4	28.98	981.4	29.48	998.3	29.98	1015.2	30.48	1032.2	30.98	1049.1	31.48	1066.0
27.99	947.9	28.49	964.8	28.99	981.7	29.49	998.6	29.99	1015.6	30.49	1032.5	30.99	1049.4	31.49	1066.4

TBL 4-3-1

## 4-3-6. RADIO COMMUNICATIONS TRANSFER

Transfer radio communications by specifying the following:

a. The name of the facility to be contacted and the frequency.

### PHRASEOLOGY-

CONTACT (name of facility) ON (frequency).

b. In situations where an aircraft will continue to communicate with your facility, use the following:

### PHRASEOLOGY-

CONTACT (name of service) ON (frequency).

#### 4-3-7. ATC CLEARANCES, ADVISORIES, OR REQUESTS

a. Notify ATC via interphone of a pilot's request for clearance and include the departure and destination airports and, if appropriate, departing runway and time in the request. Relay, verbatim, ATC clearances, advisories, and requests received from the control facility. Give a time check to the nearest quarter minute when relaying a clearance that includes a release or void time.

##### NOTE-

For ATC clearances, "verbatim" means exact control instructions, in the format stated in FAAO 7110.65, Air Traffic Control, Para 4-2-1, Clearance Items.

##### PHRASEOLOGY-

Aircraft on the ground:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC,

(Aircraft identification) DEPARTING (airport), RUNWAY (number if applicable) DESTINATION (fix or airport). (If applicable), CAN BE OFF AT (time).

Aircraft airborne:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC:

(Aircraft identification), (position), (altitude), (route), AND (destination).

b. Prefix all ATC clearances, advisories, or requests with the appropriate phrase "A-T-C CLEARS," "A-T-C ADVISES," etc.

c. When issuing information, relaying clearances, or instructions, ensure acknowledgement by the pilot.

d. If altitude, heading, or other items are read back by the pilot, ensure the readback is correct. If incorrect or incomplete, make corrections as appropriate.

##### NOTE-

Pilots may acknowledge clearances, instructions, or information by using "Wilco," "Roger," "Affirmative," or other appropriate words or remarks.

##### REFERENCE-

Pilot/Controller Glossary.

#### 4-3-8. DEPARTURE REPORTS

a. When an IFR aircraft reports airborne or is observed airborne, transmit the aircraft identification

and departure time to the control facility from which the clearance was received.

##### PHRASEOLOGY-

(Facility) RADIO. DEPARTURE. (Aircraft identification), (time).

##### NOTE-

This includes known VFR departure times of aircraft which are to obtain IFR clearances when airborne.

b. When an aircraft which has filed an IFR flight plan requests a VFR departure, facilitate the request as follows:

1. If the facility/sector responsible for issuing the clearance is unable to issue a clearance, inform the pilot and suggest that the delay be taken on the ground. If the pilot insists upon taking off VFR and obtaining an IFR clearance in the air, relay the pilot's intentions and, if possible, the VFR departure time to the facility/sector holding the flight plan.

2. After obtaining approval from the facility/sector responsible for issuing the IFR clearance, an aircraft planning IFR flight may be authorized to depart VFR. Inform the pilot of the proper frequency and, if appropriate, where or when to contact the facility responsible for issuing the clearance.

(a) When requesting:

##### PHRASEOLOGY-

(Facility) RADIO. (Aircraft identification), REQUEST V-F-R DEPARTURE.

(b) When relaying to aircraft:

##### PHRASEOLOGY-

A-T-C ADVISES (aircraft identification) V-F-R DEPARTURE APPROVED. CONTACT (facility) ON (frequency) AT (location or time, if required) FOR CLEARANCE.

(c) Relaying to control facility:

##### PHRASEOLOGY-

(Facility) RADIO. (Aircraft identification) DEPARTED V-F-R AT (time).

#### 4-3-9. IFR FLIGHT PROGRESS REPORTS

Relay to the appropriate ATC facility the aircraft identification, position, time, altitude, estimate of next reporting point, name of subsequent reporting point, and any pilot remarks or requests including amended flight plan data.

## Section 5. SPECIAL VFR OPERATION

### 4-5-1. AUTHORIZATION

a. Special VFR (SVFR) operations in weather conditions less than VFR minima are authorized:

1. For helicopters and fixed-wing aircraft at any location not prohibited by 14 CFR Part 91, Appendix D, Section 3, or when an exception to 14 CFR Part 91, Appendix D, Section 3 has been granted and an associated letter of agreement established.

#### REFERENCE-

14 CFR Part 91, Appendix D, Section 3. Controlled airspace within which special V-F-R weather minimums are not authorized.

2. Only within surface areas.

3. Only when requested by the pilot.

b. When the primary airport is reporting VFR, SVFR operations may be authorized for aircraft transiting surface areas when the pilot advises the inability to maintain VFR.

#### NOTE-

Control facilities shall always retain SVFR operations authority when IFR operations are being conducted in surface areas.

### 4-5-2. REQUESTS FOR SPECIAL VFR CLEARANCE

a. Transmit SVFR clearances only for operations within surface areas on the basis of weather conditions. If weather conditions are not reported, transmit an SVFR clearance whenever a pilot advises unable to maintain VFR and requests an SVFR clearance, provided the pilot reports having at least 1-mile flight visibility.

#### PHRASEOLOGY-

ATC CLEARS (aircraft identification) TO ENTER/OUT OF/THROUGH (name) SURFACE AREA, and if applicable, (direction) OF (name) AIRPORT (specified routing),

and

MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude) (if applicable) WHILE IN SURFACE AREA.

ATC CLEARS (aircraft identification) TO OPERATE WITHIN (name) SURFACE AREA. MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude).

b. Transmit clearance for local SVFR operations for a specified period (series of takeoffs and landings, etc.)

upon request if the aircraft can be recalled when traffic or weather conditions require. Where warranted, letters of agreement may be established.

#### PHRASEOLOGY-

LOCAL SPECIAL V-F-R OPERATIONS IN THE IMMEDIATE VICINITY OF (name) AIRPORT ARE AUTHORIZED UNTIL (time). MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude).

c. If an aircraft operating under visual flight rules attempts to enter, depart, or operate within surface areas contrary to the provisions of 14 CFR Section 91.157 (visual flight rules), provide the following information:

1. At airports with commissioned ASOS/AWOS with ground-to-air capability, instruct the pilot to monitor the automated weather frequency and advise intentions.

#### PHRASEOLOGY-

MONITOR (location) ASOS/AWOS. ADVISE INTENTIONS.

2. At all other locations, or if the pilot is unable to receive the ASOS/AWOS broadcast, issue the ceiling and visibility. Advise the pilot that the weather is below VFR minima, and request the pilot's intentions.

#### PHRASEOLOGY-

(Location) WEATHER, CEILING (height), VISIBILITY (miles). WEATHER IN (location) SURFACE AREA IS BELOW V-F-R MINIMA. AN ATC CLEARANCE IS REQUIRED. ADVISE INTENTIONS.

#### NOTE-

Helicopters performing hover taxiing operations (normally not above 10 feet) within the boundary of the airport are considered to be taxiing aircraft.

d. At a pilot's request, issue an SVFR clearance, if appropriate, when an SVFR letter of agreement exists between an AFSS/FSS and the control facility. If no agreement exists, request clearance from the control facility. State the aircraft's location and route of flight.

#### PHRASEOLOGY-

(Facility name) RADIO. REQUEST SPECIAL V-F-R CLEARANCE (aircraft identification) (direction) OF (location) AIRPORT (specified routing) INTO/OUT OF/THROUGH THE (location) SURFACE AREA.

#### NOTE-

IFR aircraft shall normally have priority over special VFR (SVFR) aircraft.

1. If the pilot is operating outside surface area and requests SVFR clearance, issue the clearance or if unable, advise the pilot to maintain VFR outside surface area and to standby for clearance.

**PHRASEOLOGY-**

*MAINTAIN V-F-R OUTSIDE (location) SURFACE AREA. STANDBY FOR CLEARANCE.*

2. When an aircraft requests a SVFR clearance to enter surface area during periods of SVFR activity, instruct the pilot to maintain VFR conditions outside surface area pending arrival/recall/departure of SVFR operations.

**PHRASEOLOGY-**

*MAINTAIN V-F-R CONDITIONS OUTSIDE OF THE (location) SURFACE AREA PENDING ARRIVAL/RECALL/DEPARTURE OF IFR/SPECIAL V-F-R AIRCRAFT.*

3. If the pilot is operating inside the surface area and requests an SVFR clearance, advise the pilot to maintain VFR and standby for clearance.

**PHRASEOLOGY-**

*MAINTAIN V-F-R, STANDBY FOR CLEARANCE.*

e. Suspend SVFR operations when necessary to comply with instructions contained in subpara 4-5-4b or when requested by the control facility.

**PHRASEOLOGY-**

*SPECIAL V-F-R AUTHORIZATION DISCONTINUED. RETURN TO AIRPORT OR DEPART SURFACE AREA. ADVISE INTENTIONS.*

*After response*

*REPORT LANDING COMPLETED/LEAVING SURFACE AREA.*

**4-5-3. VISIBILITY BELOW 1 MILE**

a. When the ground visibility is officially reported at an airport as less than 1 mile, treat requests for SVFR operations at that airport by other than helicopters as follows:

**NOTE-**

*14 CFR Part 91 does not prohibit helicopter Special VFR flights when visibility is less than 1 mile.*

1. Inform departing aircraft that ground visibility is less than 1 mile and that a clearance cannot be issued.

**PHRASEOLOGY-**

*(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE DEPARTURE CLEARANCE.*

2. Inform arriving aircraft operating outside of the surface area that ground visibility is less than 1 mile and, unless an emergency exists, a clearance cannot be issued.

**PHRASEOLOGY-**

*(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.*

3. Inform arriving aircraft operating within the surface area that ground visibility is less than 1 mile and request the pilot's intentions. Relay the pilot's response to the control facility immediately.

**PHRASEOLOGY-**

*(Location) VISIBILITY (value). ADVISE INTENTIONS.*

b. When weather conditions are not officially reported at an airport and the pilot advises the flight visibility is less than 1 mile, treat request for SVFR operations at that airport by other than helicopters as follows:

**NOTE-**

*14 CFR Part 91 prescribes use of officially reported ground visibility at airports where it is provided, and landing or takeoff flight visibility where it is not, as the governing ground visibility for VFR and SVFR operations.*

1. Inform departing aircraft that a clearance cannot be issued.

**PHRASEOLOGY-**

*UNABLE TO ISSUE DEPARTURE CLEARANCE.*

2. Inform arriving aircraft operating outside the surface area that unless an emergency exists, a clearance cannot be issued.

**PHRASEOLOGY-**

*ATC UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.*

3. Request intentions of arriving aircraft operating within surface areas. Relay the pilot's response to the control facility immediately.

**PHRASEOLOGY-**

*ADVISE INTENTIONS.*

c. Transmit a clearance to scheduled air carrier aircraft to conduct operations if ground visibility is not less than 1/2 mile.

d. Transmit a clearance to an aircraft to fly through surface area if the pilot reports flight visibility is at least 1 statute mile.

**4-5-4. PREDESIGNED SPECIAL VFR CLEARANCES**

Transmit predesigned SVFR clearances only during those periods authorized by the control facility.

**NOTE-**

*The control facility may rescind this authorization at any time.*

## Section 2. OPERATIONS

### 5-2-1. INFORMATION REQUIREMENTS

a. Start assistance as soon as enough information has been obtained upon which to act. Information requirements will vary, depending on the existing situation. Minimum required information for inflight emergencies is:

1. Aircraft identification, type, and transponder.
2. Nature of the emergency.
3. Pilot's desires.

b. After initiating action, provide the altimeter setting and obtain the following items or any other pertinent information from the pilot or aircraft operator as necessary:

1. Aircraft altitude.
2. Fuel remaining in time.
3. Pilot reported weather.
4. Pilot capability for IFR flight.
5. Time and place of last known position.
6. Heading since last known position.
7. Airspeed.
8. Navigation equipment capability.
9. NAVAID signals received.
10. Visible landmarks.
11. Aircraft color.
12. Number of people on board.
13. Point of departure and destination.
14. Emergency equipment on board.

### 5-2-2. FREQUENCY CHANGES

Provide assistance on the initial contact frequency. Change frequencies only when there is a valid reason.

### 5-2-3. AIRCRAFT ORIENTATION

Orient an aircraft by the means most appropriate to the circumstances. Recognized methods include:

- a. Radar.
- b. DF.
- c. NAVAID's.

d. Pilotage.

e. Sighting by other aircraft.

### 5-2-4. ALTITUDE CHANGE FOR IMPROVED RECEPTION

If deemed necessary, and if weather and circumstances permit, recommend the aircraft maintain or increase altitude to improve communications, radar, or DF reception.

### 5-2-5. ALERTING CONTROL FACILITY

When an aircraft is considered to be in emergency status, alert the appropriate control facility and forward the following information as available:

- a. Facility and person calling.
- b. Flight plan, including color of aircraft if known.
- c. Time of last transmission received, by whom, and frequency used.
- d. Last known position, estimated present position, and maximum range of flight of the aircraft based on remaining fuel and airspeed.
- e. Action taken by reporting facility and proposed action.
- f. Number of persons on board.
- g. Fuel status.
- h. Position of other aircraft near the aircraft's route of flight when requested.
- i. Whether an ELT signal has been heard or reported in the vicinity of the last known position.
- j. Other pertinent information.

### 5-2-6. VFR AIRCRAFT IN WEATHER DIFFICULTY

If a VFR aircraft requests assistance when it encounters or is about to encounter IFR weather conditions, request the pilot contact the appropriate control facility. Inform that facility of the situation. If the pilot is unable to communicate with the control facility, relay information and clearances.

### 5-2-7. AIRCRAFT POSITION PLOTS

Plot the flight path of the aircraft on a chart, including position reports, predicted positions, possible range of flight, and any other pertinent information. Solicit the



assistance of other aircraft known to be operating near the aircraft in distress. Forward the information to the appropriate control facility.

#### **5-2-8. EMERGENCY LOCATOR TRANSMITTER (ELT) SIGNALS**

When an ELT signal is heard or reported:

a. Notify the ARTCC, who will coordinate with the Rescue Coordination Center (RCC).

b. If the ELT signal report was received from an airborne aircraft, attempt to obtain the following information:

1. The aircraft altitude.
2. Where and when the signal was first heard.
3. Where and when maximum signal was heard.
4. Where and when signal faded or was lost.

Solicit the assistance of other aircraft known to be operating in the signal area for the same information. Relay all information obtained to the ARTCC.

c. Attempt to obtain fixes or bearings on the signal and forward any information obtained to the ARTCC.

#### **NOTE-**

*Fix information, in relation to a VOR or a VORTAC (radial distance), facilitates accurate ELT plotting by RCC and should be provided when possible.*

d. In addition to the above, when the ELT signal strength indicates the transmitter may be on the airport or in the vicinity, notify the on-site Airway Facilities personnel for their action.

e. Air Traffic personnel shall not leave their required duty stations to locate an ELT signal source.

f. Attempt to locate the signal source by checking all adjacent airports not already checked by other ATC facilities for the following information:

1. Can ELT signal be heard.
2. Does signal strength indicate transmitter may be on airport.
3. Can attempt be made to locate and silence transmitter.
4. Advise the results of any action taken. Forward all information obtained and action taken to the ARTCC.

g. Notify the ARTCC if the signal source is located and whether the aircraft is in distress, plus any action

taken or proposed for silencing the transmitter. Request person who located signal's source to attempt to obtain ELT make, model, etc., for relay to RCC via the ARTCC.

h. Notify the ARTCC if the signal terminates prior to location of the source.

#### **NOTE-**

*1. The ARTCC serves as the contact point for collecting information and coordinating with the RCC on all ELT signals.*

*2. Operational ground testing of ELT has been authorized during the first 5 minutes of each hour. To avoid confusing the tests with an actual alarm, the testing is restricted to no more than three audio sweeps.*

*3. Portable hand-carried receivers assigned to Air Traffic facilities (where no Airway Facilities personnel are available) may be loaned to responsible airport personnel or local authorities to assist in locating signal source.*

#### **5-2-9. EXPLOSIVE CARGO**

When you receive information that an emergency landing will be made with explosive cargo aboard, inform the pilot of the safest or least congested airport areas. Relay the explosive cargo information to:

- a. The emergency equipment crew.
- b. The airport management.
- c. The appropriate military agencies when requested by the pilot.

#### **5-2-10. EXPLOSIVE DETECTION DOG HANDLER TEAMS**

Take the following actions upon receipt of a pilot request for the location of the nearest explosive detection K-9 team.

- a. Obtain the aircraft's identification and current position and advise the person in charge of the watch of the pilot's request.
- b. Relay the pilot's request to the FAA Washington Operations Center, ADA-30, (202) 267-3333, and provide the aircraft identification and position.
- c. ADA-30 will provide the nearest location. Have ADA-30 standby while the information is relayed to the pilot.
- d. If the pilot wishes to divert to the airport location provided, obtain an estimated arrival time from the pilot and advise the person in charge of the watch.

e. After the aircraft destination has been determined, estimate the arrival time and advise ADA-30. ADA-30 will then notify the appropriate airport authority at the diversion airport. In the event the K-9 team is not available at this airport, ADA-30 will advise the AT facility and provide them with the secondary location. Relay this to the pilot concerned for appropriate action.

**REFERENCE-**

FAAO 7210.3, Para 2-1-10, Explosives Detection K-9 Teams.

### 5-2-11. INFLIGHT EQUIPMENT MALFUNCTIONS

When a pilot reports an inflight equipment malfunction, take the following action:

a. Request the nature and extent of any special handling desired.

**NOTE-**

14 CFR Part 91 requires the pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight. This includes the degree to which the capability of the aircraft to operate IFR in the air traffic control system is impaired and the nature and extent of any assistance desired from air traffic control.

b. Provide the maximum assistance possible consistent with equipment, workload, and any special handling requested.

c. Relay any special handling required or being provided to other specialists or facilities who will subsequently handle the aircraft.

### 5-2-12. NAVY FLEET SUPPORT MISSIONS

Handle Navy Fleet Support Missions aircraft as follows:

a. When you receive information concerning an emergency to a U.S. Navy Special Flight Number aircraft, inform the nearest ARTCC of all pertinent information.

b. Relay the words SPECIAL FLIGHT NUMBER followed by the number given as part of the routine IFR flight information.

### 5-2-13. COUNTRIES IN THE SPECIAL INTEREST FLIGHT PROGRAM

Upon receipt of any flight movement data on an aircraft registered in a communist-controlled country, notify the supervisor and the appropriate ARTCC

immediately. Additionally, if the aircraft is making an emergency or an unscheduled landing in the United States, notify the nearest U.S. Customs Service Office.

**NOTE-**

Communist-controlled countries include Albania, Bulgaria, Cambodia, Peoples Republic of China, Cuba, North Korea, Outer Mongolia, Romania, Former USSR countries recognized as the Russian Federation Commonwealth of Independent States, and Socialist Republic of Vietnam.

### 5-2-14. MINIMUM FUEL

If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route.

**NOTE-**

Use of the term minimum fuel indicates recognition by a pilot that the fuel supply has reached a state whereupon reaching destination, any undue delay cannot be accepted. This is not an emergency situation, but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does not imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

### 5-2-15. AIRCRAFT BOMB THREATS

a. When information is received from any source that a bomb has been placed on, in, or near an aircraft for the purpose of damaging or destroying such aircraft, notify the supervisor or facility manager. If the threat is general in nature, handle it as a suspicious activity. When the threat is targeted against a specific aircraft and you are in contact with that aircraft, take the following actions as appropriate:

**NOTE-**

1. Facility supervisors are expected to notify the appropriate offices, agencies, and operators/air carriers according to applicable plans, directives, FAAO 7210.3, Facility Operation and Administration, or military directives.

2. Suspicious activity is covered in FAAO 7210.3, Facility Operation and Administration. Military facilities would report a general threat through the chain of command or according to service directives.

3. A specific threat may be directed at an aircraft registry

or tail number, the air carrier flight number, the name of an operator, crew member or passenger, the departure/arrival point or times, or combinations thereof.

1. Advise the pilot of the threat.

2. Inform the pilot that technical assistance can be obtained from an FAA aviation explosives expert.

**NOTE-**

An FAA aviation explosives expert is on call at all times and may be contacted by calling the FAA Operations Center, Washington, DC, (202) 267-3333. Technical advice can be relayed to assist civil or military air crews in their search for a bomb and in determining what precautionary action to take if one is found.

3. Ask if the pilot desires to climb or descend to an altitude that would equalize or reduce the outside air pressure/existing cabin air pressure differential. Obtain and relay an appropriate clearance considering MEA, MOCA, MRA, and weather.

**NOTE-**

Equalizing existing cabin air pressure with outside air pressure is a key step which the pilot may wish to take to minimize the damage potential of a bomb.

4. Handle the aircraft as an emergency, and/or provide the most expeditious handling possible with respect to the safety of other aircraft, ground facilities, and personnel.

**NOTE-**

Emergency handling is discretionary and should be based on the situation. With certain types of threats, plans may call for a low-key action or response.

5. Obtain and relay clearance to a new destination, if requested.

6. When a pilot requests technical assistance or if it is apparent that such assistance is needed, do NOT suggest what actions the pilot should take concerning a bomb, but obtain the following information and notify the supervisor who will contact the FAA aviation explosives expert:

**NOTE-**

This information is needed by the FAA aviation explosives expert so that the situation can be assessed and immediate recommendations made to the pilot. The aviation explosives expert may not be familiar with all military aircraft configurations but can offer technical assistance which would be beneficial to the pilot.

(a) Type, series, and model of the aircraft.

(b) Precise location/description of the bomb device if known.

(c) Other details which may be pertinent.

**NOTE-**

The following details may be of significance if known, but it is not intended that the pilot should disturb a suspected bomb/bomb container to ascertain the information:

1. The altitude or time set for the bomb to explode.

2. Type of detonating action (barometric, time, anti-handling, remote radio transmitter).

3. Power source (battery, electrical, mechanical).

4. Type of initiator (blasting cap, flash bulb, chemical).

5. Type of explosive/incendiary charge (dynamite, black powder, chemical).

b. When a bomb threat involves an aircraft on the ground and you are in contact with the suspect aircraft, take the following actions in addition to those discussed in the preceding paragraphs which may be appropriate:

1. If the aircraft is at an airport where tower control or LAA is not available, or if the pilot ignores the threat at any airport, recommend that takeoff be delayed until the pilot or aircraft operator establishes that a bomb is not aboard in accordance with 14 CFR Part 121. If the pilot insists on taking off, and in your opinion the operation will not adversely affect other traffic, issue or relay an ATC clearance.

**REFERENCE-**

14 CFR Part 121.537.

2. Advise the aircraft to remain as far away from other aircraft and facilities as possible, to clear the runway, if appropriate, and to taxi to an isolated or designated search area. When it is impractical or if the pilot takes an alternative action, such as parking and offloading immediately, advise other aircraft to remain clear of the suspect aircraft by at least 100 yards, if able.

**NOTE-**

Passenger deplaning may be of paramount importance and must be considered before the aircraft is parked or moved away from the service areas. The decision to use ramp facilities rests with the pilot, aircraft operator, and/or airport manager.

c. If you are unable to inform the suspect aircraft of a bomb threat or if you lose contact with the aircraft, advise your supervisor and relay pertinent details to other sectors or facilities as deemed necessary.

d. When a pilot reports the discovery of a bomb or suspected bomb on an aircraft which is airborne or on the ground, determine the pilot's intentions and comply

with his/her requests insofar as possible. Take all the actions discussed in the preceding paragraphs which may be appropriate under the existing circumstances.

e. The handling of aircraft when a hijacker has or is suspected of having a bomb requires special considerations. Be responsive to the pilot's requests and notify supervisory personnel. Apply hijacking procedures and, if needed, offer assistance to the pilot according to the preceding paragraphs.

#### **5-2-16. SECURITY CONTROL OF AIR TRAFFIC AND NAVIGATION AIDS (SCATANA)**

a. The SCATANA Plan outlines responsibilities, procedures, and instructions for the security control of civil and military air traffic and NAVAID's under various emergency conditions.

b. When notified of SCATANA implementation, follow the instructions of FAA Form 7610-1 and any additional instructions received from the ARTCC.

1. To ensure that SCATANA actions can be taken expeditiously, periodic SCATANA tests will be conducted in connection with NORAD exercises. Tests may be local, regional, or national in scope.

2. AFSS/FSS facilities will participate in tests except where such participation will involve the safety of aircraft.

3. During SCATANA tests, all actions will be simulated.

**REFERENCE-**  
*FAAO 7610.4, Special Military Operations.*

2. Relay CIRVIS reports by the most expeditious means to the appropriate ARTCC.

e. Pacific - Delivery of CIRVIS/MERINT Messages.

1. Pacific area FAA facilities shall immediately pass the CIRVIS message to the appropriate ARTCC. Specific relay and/or delivery responsibilities are as follows:

(a) Hawaiian Island Facilities. Interphone to Honolulu ARTCC; transmit confirmation message addressed to the Air Defense Control Center (ADCC) and the Hawaiian Sea Frontier Operations Control Center.

(b) Samoa CAP/IS. Transmit message addressed to Honolulu ARTCC, the Air Defense Control Center (ADCC), and the Hawaiian Sea Frontier Operations Control Center.

**EXAMPLE-**

*Report as filed by Samoa CAP/IS:*

/B

SS PHNLZOZX PHNCYXYX

232020 NSTUYFYX

CNTR PHNL. ADCC KUNIA. HAWSEAFRON

OPERATIONS CONTROL CENTER KUNIA.

CIRVIS REPORT PA818 SIGHTED

XXXXX XXXXX XXXXX (TEXT) XXXXX JONES

CAP/IS 232020

2. The Honolulu and Guam ARTCC's will forward the CIRVIS message immediately by interphone to the military commands designated by CINCPAC. These military addressees will be responsible for forwarding the information to other military services or higher headquarters as required.

3. CINCPAC has designated the following military commands as addressees for reports originating in the Pacific area and handled by FAA facilities:

(a) For reports originating in the Honolulu FIR:

(1) The Air Defense Control Center, Kunia (ADCC).

(2) The Hawaiian Sea Frontier Operations Control Center, Kunia.

(b) For reports originating in the Guam FIR:

(1) The Anderson Air Force Base Command Post, Guam.

(2) The COMNAVMARIANAS Operation.

4. The action required of the military commanders upon receipt of a sighting report is dictated to a large extent by whether the word CIRVIS appears as the first word of the report. This word indicates that the information may be of vital importance to the security of the United States and requires certain specific action on the part of various military commanders. For this reason, the word CIRVIS shall appear in sighting reports handled by FAA facilities ONLY WHEN SO DESIGNATED BY THE OBSERVER. Sighting reports received without this designation shall be accepted and forwarded verbatim to the addressee indicated above without an identifying prefix; e.g., "PA818 REPORTS SIGHTING VESSEL ..." All sighting reports, regardless if they are designated as CIRVIS, shall be assigned the priority prefix SS to ensure rapid handling. Because of the strategic location of Wake and Samoa, CINCPAC is also interested in reports from ground observers concerning questionable or suspicious actions on the part of unidentified aircraft or vessels in the vicinity of these islands. Such reports shall be given the same distribution as CIRVIS reports.

5. Sighting Reports (MERINT) that may be received by Pacific area FAA facilities, particularly at Wake and Samoa, shall be given the same distribution as described for CIRVIS reports. Instructions concerning MERINT reports are contained in Chapter III of JANAP 146(E).

6. All facilities shall maintain a copy of JANAP 146(E) in a suitable binder and keep it available for reference in the facility operations area.

f. 7602nd Air Intelligence Group (AFIS) - Conterminous U.S. only. To assist the 7602nd Air Intelligence Group in locating downed enemy aircraft during periods of hostilities, immediately forward all information about downed enemy aircraft to the appropriate ARTCC for relay to the NORAD Direction Center by the fastest means available.

5. Low level wind shear. Classify LLWS PIREP's as UUA if the pilot reports air speed fluctuations of 10 knots or more. Classify reports of LLWS with air speed fluctuations less than 10 knots as routine. If air speed fluctuation is not reported, classify PIREP as UUA.

**NOTE-**

*LLWS defined as windshear within 2,000 feet of the surface.*

6. Volcanic ash clouds.

7. Any other weather phenomena reported which are considered by the specialist as being hazardous, or potentially hazardous, to flight operations.

b. ROUTINE. Classify as ROUTINE (UA) all PIREP's received except those listed above.

### 9-2-12. PIREP HANDLING

Upon receipt of a PIREP, accomplish the following:

a. Urgent.

1. Deliver to the ARTCC Weather Coordinator as soon as possible.

2. Deliver to the associated WSO as soon as possible.

3. Enter on Service A at the first opportunity.

4. Use in weather briefings, as appropriate.

b. Routine.

1. Transmit on Service A as soon as practical.

2. Broadcast in accordance with established procedures in Chapter 2.

3. Use in weather briefings, as appropriate.

### 9-2-13. OFFSHORE COASTAL ROUTES

When your station has been given responsibility for collecting offshore coastal route PIREP's:

a. Include the coastal water area when soliciting PIREP's. At least one PIREP is required hourly regardless of weather conditions.

b. Pacific. Hawaiian Island station areas coincide with the Honolulu ARTCC sectors and the entire Hawaiian area is designated as offshore areas for PIREP purposes.

**NOTE-**

*The AT division assigns PIREP responsibility for an offshore coastal area, route, or route segment to a specific station. The area assigned will be within the same ARTCC*

*area as the station, and the station shall have adequate air-ground communications coverage over its assigned offshore area.*

### 9-2-14. PIREP PREPARATION

To assure proper dissemination of PIREP's to all system users, the encoding procedures listed below shall be followed:

a. Identify each element by a Text Element Indicator (TEI).

b. Ensure each report includes TEI's for message type, location, time, altitude/flight level, type aircraft, and at least one other to describe the reported phenomena.

c. Precede each TEI, except message type, with a space and a solidus (/).

d. Follow each TEI, except altitude/flight level, with a space.

e. Insert zeros in reported values when the number of digits in the report is less than the number required by the format.

f. Use only authorized aircraft designators and contractions.

g. In the location TEI, include any three-letter identifier to describe locations or routes.

h. Omit entries of TEI's, except as listed in subparagraph 9-2-14b, for which no data was reported.

### 9-2-15. PIREP FORMAT

Using TEI's as described below, prepare PIREP's for system entry in the following format:

a. UUA or UA. Message type - Urgent or Routine PIREP.

b. /OV.

1. Location in reference to a VHF NAVAID or an airport, using the three or four letter identifier. If appropriate, encode the identifier, followed by a space, then three digits to define a radial and three digits to define the distance in nautical miles.

**EXAMPLE-**

/OV KJFK

/OV KJFK107080

/OV KFMG233016/RM RNO 10SW

2. Route segment. Two or more fixes, as in subparagraphs 9-2-15b1 and b2 examples, to describe a route.

**EXAMPLE-**

/OV KSTL-KMKC

/OV KSTL090030-KMKC045015

c. /TM. Time that the reported phenomenon occurred or was encountered. Report time in four digits UTC.

**EXAMPLE-**

/TM 1315

d. /FL. Altitude/flight level. Enter the altitude in hundreds of feet (MSL) where the phenomenon was first encountered. If not known, enter UNKN. If the aircraft was climbing or descending, enter the appropriate contraction (DURGC or DURGD) in the remarks/RM TEI. If the condition was encountered within a layer, enter the altitude range within the appropriate TEI describing the condition.

**EXAMPLE-**

/FL093

/FL310

/FLUNKN /RM DURGC

e. /TP. Type aircraft. Enter aircraft type. If not known, enter UNKN. Icing and turbulence reports shall always include the type aircraft.

**EXAMPLE-**

/TP AEST

/TP B74A

/TP P28R

/TP UNKN

f. /SK. Sky condition. Report height of cloud bases, tops, and cloud coverage as follows:

1. Enter the height of the base of a layer of clouds in hundreds of feet (MSL). Enter the top of a layer in hundreds of feet (MSL) preceded by the word "-TOP." If reported as clear above the highest cloud layer, enter "SKC" following the reported level.

**EXAMPLE-**

/SK OVC100-TOP110/ SKC

/SK OVC015-TOP035/OVC230

/SK OVC-TOP085

2. Use authorized contractions for cloud cover.

**EXAMPLE-**

BKN

FEW

OVC

SCT

SKC

3. Cloud cover amount ranges will be entered with a hyphen and no spaces separating the amounts; i.e., BKN-OVC.

**EXAMPLE-**

/SK SCT-BKN050-TOP100

/SK BKN-OVCUNKN-TOP060/BKN120-TOP150/ SKC

4. Unknown heights are indicated by the contraction UNKN.

**EXAMPLE-**

/SK OVC065-TOPUNKN

5. If a pilot indicates he/she is in the clouds, enter IMC.

**EXAMPLE-**

/SK OVC065-TOPUNKN /RM IMC

6. When more than one layer is reported, separate layers by a solidus (/).

g. /WX. Flight visibility and flight weather. Report weather conditions encountered by the pilot as follows:

1. Flight visibility, if reported, will be the first entry in the /WX field. Enter as FV followed by a two-digit visibility value rounded down, if necessary, to the nearest whole statute mile and append "SM" (FV03SM). If visibility is reported as unrestricted, enter FV99SM.

2. Enter flight weather types using one or more of the standard surface weather reporting symbols contained in TBL 9-2-1.

**Weather type and symbols**

Type	METAR Code
Drifting / Blowing Snow .....	DRSN/BLSN
Drifting Dust .....	DRDU
Drifting Sand .....	DRSA
Drizzle/Freezing Drizzle .....	DZ/FZDZ
Dust / Blowing Dust .....	DU/BLDU
Duststorm .....	DS
Fog (vis < 5/8SM) .....	FG
Freezing Fog .....	FZFG
Freezing Rain .....	FZRA
Funnel Cloud .....	FC
Hail (aprx 1/4" dia or more) .....	GR
Hail Shower .....	SHGR
Haze .....	HZ
Ice Crystals .....	IC
Ice Pellets/ Showers .....	PL/SHPL
Mist (vis > 5/8SM) .....	BR
Patchy Fog .....	BCFG
Patchy Fog on part of Arpt .....	PRFG
Rain / Showers .....	RA/SHRA
Sand / Blowing Sand .....	SA/BSA
Sandstorms .....	SS
Shallow Fog .....	MIFG
Sml Hail/Snow Pellet Showers .....	SHGS
Sml Hail/Snow Pellets .....	GS

# Chapter 13. NAVAID MONITORING

## Section 1. GENERAL

### 13-1-1. PURPOSE

Facility responsibility for monitoring of NAVAID's is assigned by the ATD. Because NAVAID's and their monitoring equipment are continuously changing, use the procedures contained in this chapter as they apply.

### 13-1-2. DUTIES

At facilities assigned responsibility for monitoring NAVAID's, check status as part of watch checklist.

### 13-1-3. MALFUNCTIONS

Take the following action when an AT system component malfunctions:

- a. Try to restore the aid to normal operation, unless AF requests otherwise.
- b. If able to restore it, record the incident on FAA Form 7230-4.
- c. If unable to restore it, discontinue its use and:
  1. Notify the appropriate IFR control facility/sector.
  2. Notify the appropriate AFSS/FSS as necessary.
  3. Notify maintenance personnel as required.
  4. Take appropriate NOTAM actions.

#### REFERENCE-

FAAO 7210.3, Para 3-5-1, NAVAID Monitoring and FAO 7930.2  
Para 4-2-3, NOTAM's for NAVAID in Different FSS Flight Plan Area.

5. Record on FAA Form 7230-4.

d. If a monitor indicates a NAVAID malfunction, but aircraft or maintenance personnel report the NAVAID is operating normally, take actions and make notifications in accordance with subpara 13-1-3c.

### 13-1-4. AIRCRAFT REPORTED MALFUNCTIONS

Aircraft reported NAVAID malfunctions are subject to varying circumstances. When an aircraft reports a NAVAID malfunction, take the following action:

- a. Request a report from a second aircraft.

b. If the second aircraft reports normal operations, continue use and, if able, inform the first aircraft. Record the incident on FAA Form 7230-4.

c. If the second aircraft confirms the malfunction, or in the absence of a second aircraft report, take NAVAID restoral action.

d. If normal operation is reported after restoral action is taken, continue use, record the incident on FAA Form 7230-4, and notify appropriate maintenance personnel.

e. If continued malfunction is reported after restoral action is taken, request advice from maintenance personnel on whether the NAVAID should be shut down. In the absence of a second aircraft report, advise maintenance personnel of the time of the initial aircraft report and the estimated time a second aircraft report could be obtained.

### 13-1-5. ADJUSTMENTS TO NAVAID'S

Notify the appropriate air traffic control facility before any adjustment (including a transmitter change) to a VOR, TACAN, or DME transmitter is made which might cause a momentary interruption or an abnormal indication on aircraft instruments.

### 13-1-6. NAVAID FLIGHT CHECK

Provide maximum assistance to aircraft engaged in flight inspection of NAVAID's. Unless otherwise agreed to, maintain direct contact with the pilot and provide information regarding known traffic in the area and request the pilot's intentions.

#### NOTE-

1. Many flight inspections are accomplished using automatic recording equipment. An uninterrupted flight is necessary for successful completion of the mission. The workload for the limited number of aircraft engaged in these activities requires strict adherence to a schedule.

2. Flight inspection operations which require special participation of ground personnel, specific communications, or radar operation capabilities are considered to require special handling. These flights are coordinated with appropriate facilities before departure.



**13-1-7. MONITORING OF NAVAID'S BY AIRWAY FACILITIES PERSONNEL**

Maintenance personnel may assume monitor of any navigational aid provided they coordinate with the responsible air traffic monitor facility. Record the time on FAA Form 7230-4 that maintenance personnel assume monitor responsibility for each NAVAID and the time they return monitor responsibility to the facility.

**NOTE-**

*When maintenance personnel silence the monitoring systems of any NAVAID, they will assume responsibility for the monitoring function.*

# PILOT/CONTROLLER GLOSSARY

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## PURPOSE

- a. This Glossary was compiled to promote a common understanding of the terms used in the Air Traffic Control system. It includes those terms which are intended for pilot/controller communications. Those terms most frequently used in pilot/controller communications are printed in ***bold italics***. The definitions are primarily defined in an operational sense applicable to both users and operators of the National Airspace System. Use of the Glossary will preclude any misunderstandings concerning the system's design, function, and purpose.
- b. Because of the international nature of flying, terms used in the Lexicon, published by the International Civil Aviation Organization (ICAO), are included when they differ from FAA definitions. These terms are followed by "[ICAO]." For the reader's convenience, there are also cross references to related terms in other parts of the Glossary and to other documents, such as the Federal Aviation Regulations (FAR's) and the Aeronautical Information Manual (AIM).
- c. This Glossary will be revised, as necessary, to maintain a common understanding of the system.

## EXPLANATION OF CHANGES

### a. Terms Added:

AIRPORT ARRIVAL RATE (AAR) (ATP-100)  
AIRPORT DEPARTURE RATE (ADR) (ATP-100)  
AIRPORT MOVEMENT AREA SAFETY SYSTEM (AMASS) (ATP-120)  
AUTOMATED TERMINAL TRACKING SYSTEM (ATTS) (ATP-100)  
CERTIFIED TOWER RADAR DISPLAY (CTRD) (ATP-110)  
MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (M-EARTS) (ATP-100)  
TRAFFIC SITUATION DISPLAY (TSD) (ATP-100)  
WIDE-AREA AUGMENTATION SYSTEM (WAAS) (ATP-402)

### b. Terms Modified:

APPROACH GATE (ATP-110)  
CIRCLE-TO-LAND MANEUVER (ATP-120)  
EXPEDITE (ATP-110)  
GLIDESLOPE INTERCEPT ALTITUDE (ATP-110)  
IMMEDIATELY (ATP-110)  
OFFSHORE/CONTROL AIRSPACE AREA (ATP-130)

### c. Terms Deleted:

AIRCRAFT SITUATION DISPLAY (ASD) (ATP-100)  
AIRPORT ACCEPTANCE RATE (AAR) (ATP-100)  
EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (EARTS) (ATP-120)

# A

## AAI-

(See ARRIVAL AIRCRAFT INTERVAL.)

## AAR-

(See AIRPORT ARRIVAL RATE.)

**ABBREVIATED IFR FLIGHT PLANS-** An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location, and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne and desire an instrument approach or by aircraft which are on the ground and desire a climb to VFR-on-top.

(See VFR-ON-TOP.)

(Refer to AIM.)

**ABEAM-** An aircraft is "abeam" a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

**ABORT-** To terminate a preplanned aircraft maneuver; e.g., an aborted takeoff.

## ACC [ICAO]-

(See AREA CONTROL CENTER.)

## ACCELERATE-STOP DISTANCE AVAILABLE-

The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

## ACCELERATE-STOP DISTANCE AVAILABLE

[ICAO]- The length of the take-off run available plus the length of the stopway if provided.

## ACDO-

(See AIR CARRIER DISTRICT OFFICE.)

**ACKNOWLEDGE-** Let me know that you have received my message.

(See ICAO term ACKNOWLEDGE.)

**ACKNOWLEDGE [ICAO]-** Let me know that you have received and understood this message.

## ACLS-

(See AUTOMATIC CARRIER LANDING SYSTEM.)

## ACLT-

(See ACTUAL CALCULATED LANDING TIME.)

**ACROBATIC FLIGHT-** An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight.

(Refer to Part 91.)

(See ICAO term ACROBATIC FLIGHT.)

**ACROBATIC FLIGHT [ICAO]-** Maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

## ACTIVE RUNWAY-

(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

**ACTUAL CALCULATED LANDING TIME- ACLT** is a flight's frozen calculated landing time. An actual time determined at freeze calculated landing time (FCLT) or meter list display interval (MLDI) for the adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the vertex time of arrival (VTA) of the aircraft or the tentative calculated landing time (TCLT)/ACLT of the previous aircraft plus the arrival aircraft interval (AAI), whichever is later. This time will not be updated in response to the aircraft's progress.

## ACTUAL NAVIGATION PERFORMANCE (ANP)-

(See Required Navigation Performance)

**ADDITIONAL SERVICES-** Advisory information provided by ATC which includes but is not limited to the following:

- a. Traffic advisories.
- b. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.
- c. Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C.)
- d. Advisories that traffic is no longer a factor.
- e. Weather and chaff information.
- f. Weather assistance.
- g. Bird activity information.
- h. Holding pattern surveillance. Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the perfor-

mance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he/she is able to provide or continue to provide a service in a particular case. The controller's reason not to provide or continue to provide a service in a particular case is not subject to question by the pilot and need not be made known to him/her.

(See TRAFFIC ADVISORIES.)

(Refer to AIM.)

**ADF-**

(See AUTOMATIC DIRECTION FINDER.)

**ADIZ-**

(See AIR DEFENSE IDENTIFICATION ZONE.)

**ADLY-**

(See ARRIVAL DELAY.)

**ADMINISTRATOR-** The Federal Aviation Administrator or any person to whom he/she has delegated his/her authority in the matter concerned.

**ADR-**

(See AIRPORT DEPARTURE RATE.)

**ADVISE INTENTIONS-** Tell me what you plan to do.

**ADVISORY-** Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.

(See ADVISORY SERVICE.)

**ADVISORY FREQUENCY-** The appropriate frequency to be used for Airport Advisory Service.

(See LOCAL AIRPORT ADVISORY.)

(See UNICOM.)

(Refer to ADVISORY CIRCULAR NO. 90-42.)

(Refer to AIM.)

**ADVISORY SERVICE-** Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.

(See LOCAL AIRPORT ADVISORY.)

(See TRAFFIC ADVISORIES.)

(See SAFETY ALERT.)

(See ADDITIONAL SERVICES.)

(See RADAR ADVISORY.)

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

(Refer to AIM.)

**AERIAL REFUELING-** A procedure used by the military to transfer fuel from one aircraft to another during flight.

(Refer to VFR/IFR Wall Planning Charts.)

**AERODROME-** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

**AERODROME BEACON [ICAO]-** Aeronautical beacon used to indicate the location of an aerodrome from the air.

**AERODROME CONTROL SERVICE [ICAO]-** Air traffic control service for aerodrome traffic.

**AERODROME CONTROL TOWER [ICAO]-** A unit established to provide air traffic control service to aerodrome traffic.

**AERODROME ELEVATION [ICAO]-** The elevation of the highest point of the landing area.

**AERODROME TRAFFIC CIRCUIT [ICAO]-** The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

**AERONAUTICAL BEACON-** A visual NAVAID displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a Federal airway in mountainous terrain, or an obstruction.

(See AIRPORT ROTATING BEACON.)

(Refer to AIM.)

**AERONAUTICAL CHART-** A map used in air navigation containing all or part of the following: topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Commonly used aeronautical charts are:

a. **Sectional Aeronautical Charts (1:500,000)-** Designed for visual navigation of slow or medium speed aircraft. Topographic information on these charts features the portrayal of relief and a judicious selection of visual check points for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

b. **VFR Terminal Area Charts (1:250,000)-** Depict Class B airspace which provides for the control or segregation of all the aircraft within Class B airspace. The chart depicts topographic information and aeronautical information which includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

c. **World Aeronautical Charts (WAC) (1:1,000,000)-** Provide a standard series of aeronautical charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes cities and towns, principal roads,

railroads, distinctive landmarks, drainage, and relief. Aeronautical information includes visual and radio aids to navigation, airports, airways, restricted areas, obstructions, and other pertinent data.

**d. En Route Low Altitude Charts-** Provide aeronautical information for en route instrument navigation (IFR) in the low altitude stratum. Information includes the portrayal of airways, limits of controlled airspace, position identification and frequencies of radio aids, selected airports, minimum en route and minimum obstruction clearance altitudes, airway distances, reporting points, restricted areas, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.

**e. En Route High Altitude Charts-** Provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.

**f. Instrument Approach Procedures (IAP) Charts-** Portray the aeronautical data which is required to execute an instrument approach to an airport. These charts depict the procedures, including all related data, and the airport diagram. Each procedure is designated for use with a specific type of electronic navigation system including NDB, TACAN, VOR, ILS/MLS, and RNAV. These charts are identified by the type of navigational aid(s) which provide final approach guidance.

**g. Instrument Departure Procedure (DP) Charts-** Designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. Each DP is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

**h. Standard Terminal Arrival (STAR) Charts-** Designed to expedite air traffic control arrival procedures and to facilitate transition between en route and instrument approach operations. Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

**i. Airport Taxi Charts-** Designed to expedite the efficient and safe flow of ground traffic at an airport. These charts are identified by the official airport name; e.g., Washington National Airport.

(See ICAO term AERONAUTICAL CHART.)

**AERONAUTICAL CHART [ICAO]-** A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

**AERONAUTICAL INFORMATION MANUAL-** A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

**AERONAUTICAL INFORMATION PUBLICATION [AIP] [ICAO]-** A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

**A/FD-**

(See AIRPORT/FACILITY DIRECTORY.)

**AFFIRMATIVE-** Yes.

**AIM-**

(See AERONAUTICAL INFORMATION MANUAL.)

**AIP [ICAO]-**

(See AERONAUTICAL INFORMATION PUBLICATION.)

**AIRBORNE DELAY-** Amount of delay to be encountered in airborne holding.

**AIR CARRIER DISTRICT OFFICE-** An FAA field office serving an assigned geographical area, staffed with Flight Standards personnel serving the aviation industry and the general public on matters related to the certification and operation of scheduled air carriers and other large aircraft operations.

**AIRCRAFT-** Device(s) that are used or intended to be used for flight in the air, and when used in air traffic control terminology, may include the flight crew.

(See ICAO term AIRCRAFT.)

**AIRCRAFT [ICAO]-** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

**AIRCRAFT APPROACH CATEGORY-** A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft shall fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the next higher category should be used. For example, an aircraft which falls in Category A, but is circling to

land at a speed in excess of 91 knots, should use the approach Category B minimums when circling to land. The categories are as follows:

- a. Category A- Speed less than 91 knots.
- b. Category B- Speed 91 knots or more but less than 121 knots.
- c. Category C- Speed 121 knots or more but less than 141 knots.
- d. Category D- Speed 141 knots or more but less than 166 knots.
- e. Category E- Speed 166 knots or more.

(Refer to Part 97.)

**AIRCRAFT CLASSES-** For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Heavy, Large, and Small as follows:

- a. Heavy- Aircraft capable of takeoff weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.
- b. Large- Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to 255,000 pounds.
- c. Small- Aircraft of 41,000 pounds or less maximum certificated takeoff weight.

(Refer to AIM.)

**AIRCRAFT SURGE LAUNCH AND RECOVERY-** Procedures used at USAF bases to provide increased launch and recovery rates in instrument flight rules conditions. ASLAR is based on:

- a. Reduced separation between aircraft which is based on time or distance. Standard arrival separation applies between participants including multiple flights until the DRAG point. The DRAG point is a published location on an ASLAR approach where aircraft landing second in a formation slows to a predetermined airspeed. The DRAG point is the reference point at which MARSA applies as expanding elements effect separation within a flight or between subsequent participating flights.

- b. ASLAR procedures shall be covered in a Letter of Agreement between the responsible USAF military ATC facility and the concerned Federal Aviation Administration facility. Initial Approach Fix spacing requirements are normally addressed as a minimum.

**AIR DEFENSE EMERGENCY-** A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental

U.S., Alaska, Canada, or U.S. installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place.

(Refer to AIM.)

**AIR DEFENSE IDENTIFICATION ZONE-** The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

- a. Domestic Air Defense Identification Zone. An ADIZ within the United States along an international boundary of the United States.

- b. Coastal Air Defense Identification Zone. An ADIZ over the coastal waters of the United States.

- c. Distant Early Warning Identification Zone (DE-WIZ.) An ADIZ over the coastal waters of the State of Alaska.

ADIZ locations and operating and flight plan requirements for civil aircraft operations are specified in FAR Part 99.

(Refer to AIM.)

**AIRMAN'S METEOROLOGICAL INFORMATION-**

(See AIRMET.)

**AIRMET-** In-flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment, instrumentation, or pilot qualifications. AIRMET's concern weather of less severity than that covered by SIGMET's or Convective SIGMET's. AIRMET's cover moderate icing, moderate turbulence, sustained winds of 30 knots or more at the surface, widespread areas of ceilings less than 1,000 feet and/or visibility less than 3 miles, and extensive mountain obscurement.

(See AWW.)

(See SIGMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(Refer to AIM.)

**AIR NAVIGATION FACILITY-** Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for

guiding or controlling flight in the air or the landing and take-off of aircraft.

(See **NAVIGATIONAL AID**.)

**AIRPORT**- An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

**AIRPORT ADVISORY AREA**- The area within ten miles of an airport without a control tower or where the tower is not in operation, and on which a Flight Service Station is located.

(See **LOCAL AIRPORT ADVISORY**.)

(Refer to **AIM**.)

**AIRPORT ARRIVAL RATE (AAR)**- A dynamic input parameter specifying the number of arriving aircraft which an airport or airspace can accept from the ARTCC per hour. The AAR is used to calculate the desired interval between successive arrival aircraft.

**AIRPORT DEPARTURE RATE (ADR)**- A dynamic parameter specifying the number of aircraft which can depart an airport and the airspace can accept per hour.

**AIRPORT ELEVATION**- The highest point of an airport's usable runways measured in feet from mean sea level.

(See **TOUCHDOWN ZONE ELEVATION**.)

(See **ICAO term AERODROME ELEVATION**.)

**AIRPORT/FACILITY DIRECTORY**- A publication designed primarily as a pilot's operational manual containing all airports, seaplane bases, and heliports open to the public including communications data, navigational facilities, and certain special notices and procedures. This publication is issued in seven volumes according to geographical area.

**AIRPORT INFORMATION AID**-

(See **AIRPORT INFORMATION DESK**.)

**AIRPORT INFORMATION DESK**- An airport unmanned facility designed for pilot self-service briefing, flight planning, and filing of flight plans.

(Refer to **AIM**.)

**AIRPORT LIGHTING**- Various lighting aids that may be installed on an airport. Types of airport lighting include:

a. **Approach Light System (ALS)**- An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in

conjunction with the ALS at some airports. Types of Approach Light Systems are:

1. **ALSF-1**- Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.

2. **ALSF-2**- Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.

3. **SSALF**- Simplified Short Approach Light System with Sequenced Flashing Lights.

4. **SSALR**- Simplified Short Approach Light System with Runway Alignment Indicator Lights.

5. **MALSF**- Medium Intensity Approach Light System with Sequenced Flashing Lights.

6. **MALSR**- Medium Intensity Approach Light System with Runway Alignment Indicator Lights.

7. **LDIN**- Lead-in-light system- Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.

8. **RAIL**- Runway Alignment Indicator Lights- Sequenced Flashing Lights which are installed only in combination with other light systems.

9. **ODALS**- Omnidirectional Approach Lighting System consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.

(Refer to **FAAO 6850.2, VISUAL GUIDANCE LIGHTING SYSTEMS**.)

b. **Runway Lights/Runway Edge Lights**- Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced at intervals of approximately 200 feet, and the intensity may be controlled or preset.

c. **Touchdown Zone Lighting**- Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.

**d. Runway Centerline Lighting-** Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway.

**e. Threshold Lights-** Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.

**f. Runway End Identifier Lights (REIL)-** Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

**g. Visual Approach Slope Indicator (VASI)-** An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is "on path" if he sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASI's which provide two visual glide paths to the same runway.

**h. Boundary Lights-** Lights defining the perimeter of an airport or landing area.

(Refer to AIM.)

**AIRPORT MARKING AIDS-** Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

**a. Visual.**

**b. Nonprecision instrument.**

**c. Precision instrument.**

(Refer to AIM.)

**AIRPORT MOVEMENT AREA SAFETY SYSTEM (AMASS)-** A software enhancement to ASDE radar which provides logic predicting the path of aircraft landing and/or departing, and aircraft and/or vehicular movements on runways. Visual and aural alarms are activated when logic projects a potential collision.

**AIRPORT REFERENCE POINT (ARP) -** The approximate geometric center of all usable runway surfaces.

**AIRPORT RESERVATION OFFICE-** Office responsible for monitoring the operation of the high density rule.

Receives and processes requests for IFR operations at high density traffic airports.

**AIRPORT ROTATING BEACON-** A visual NAVAID operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport. At military airports, the beacons flash alternately white and green, but are differentiated from civil beacons by dualpeaked (two quick) white flashes between the green flashes.

(See SPECIAL VFR OPERATIONS.)

(See INSTRUMENT FLIGHT RULES.)

(Refer to AIM.)

(See ICAO term AERODROME BEACON.)

**AIRPORT SURFACE DETECTION EQUIPMENT-** Radar equipment specifically designed to detect all principal features on the surface of an airport, including aircraft and vehicular traffic, and to present the entire image on a radar indicator console in the control tower. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways and taxiways.

**AIRPORT SURVEILLANCE RADAR-** Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

**AIRPORT TAXI CHARTS-**

(See AERONAUTICAL CHART.)

**AIRPORT TRAFFIC CONTROL SERVICE-** A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport.

(See MOVEMENT AREA.)

(See TOWER.)

(See ICAO term AERODROME CONTROL SERVICE.)

**AIRPORT TRAFFIC CONTROL TOWER-**

(See TOWER.)

**AIR ROUTE SURVEILLANCE RADAR-** Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control.

**AIR ROUTE TRAFFIC CONTROL CENTER-** A facility established to provide air traffic control service



to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.

(See NAS STAGE A.)

(See EN ROUTE AIR TRAFFIC CONTROL SERVICES.)

(Refer to AIM.)

**AIRSPACE HIERARCHY-** Within the airspace classes, there is a hierarchy and, in the event of an overlap of airspace: Class A preempts Class B, Class B preempts Class C, Class C preempts Class D, Class D preempts Class E, and Class E preempts Class G.

**AIRSPEED-** The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following:

**a. Indicated Airspeed-** The speed shown on the aircraft airspeed indicator. This is the speed used in pilot/controller communications under the general term "airspeed."

(Refer to FAR Part 1.)

**b. True Airspeed-** The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and en route portion of flight. When used in pilot/controller communications, it is referred to as "true airspeed" and not shortened to "airspeed."

**AIRSTART-** The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.

**AIR TAXI-** Used to describe a helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet AGL. The aircraft may proceed either via hover taxi or flight at speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted.

(See HOVER TAXI.)

(Refer to AIM.)

**AIR TRAFFIC-** Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

(See ICAO term AIR TRAFFIC.)

**AIR TRAFFIC [ICAO]-** All aircraft in flight or operating on the manoeuvring area of an aerodrome.

**AIR TRAFFIC CLEARANCE-** An authorization by air traffic control for the purpose of preventing collision between known aircraft, for an aircraft to proceed under

specified traffic conditions within controlled airspace. The pilot-in-command of an aircraft may not deviate from the provisions of a visual flight rules (VFR) or instrument flight rules (IFR) air traffic clearance except in an emergency or unless an amended clearance has been obtained. Additionally, the pilot may request a different clearance from that which has been issued by air traffic control (ATC) if information available to the pilot makes another course of action more practicable or if aircraft equipment limitations or company procedures forbid compliance with the clearance issued. Pilots may also request clarification or amendment, as appropriate, any time a clearance is not fully understood, or considered unacceptable because of safety of flight. Controllers should, in such instances and to the extent of operational practicality and safety, honor the pilot's request. FAR Part 91.3(a) states: "The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft." **THE PILOT IS RESPONSIBLE TO REQUEST AN AMENDED CLEARANCE** if ATC issues a clearance that would cause a pilot to deviate from a rule or regulation, or in the pilot's opinion, would place the aircraft in jeopardy.

(See ATC INSTRUCTIONS.)

(See ICAO term AIR TRAFFIC CONTROL CLEARANCE.)

**AIR TRAFFIC CONTROL-** A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

(See ICAO term AIR TRAFFIC CONTROL SERVICE.)

**AIR TRAFFIC CONTROL CLEARANCE [ICAO]-** Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

**Note 1:** For convenience, the term air traffic control clearance is frequently abbreviated to clearance when used in appropriate contexts.

**Note 2:** The abbreviated term clearance may be prefixed by the words taxi, takeoff, departure, en route, approach or landing to indicate the particular portion of flight to which the air traffic control clearance relates.

**AIR TRAFFIC CONTROL SERVICE-**

(See AIR TRAFFIC CONTROL.)

**AIR TRAFFIC CONTROL SERVICE [ICAO]-** A service provided for the purpose of:

**a. Preventing collisions:**

**1. Between aircraft; and**

2. On the manoeuvring area between aircraft and obstructions; and

b. Expediting and maintaining an orderly flow of air traffic.

**AIR TRAFFIC CONTROL SPECIALIST-** A person authorized to provide air traffic control service.

(See AIR TRAFFIC CONTROL.)

(See FLIGHT SERVICE STATION.)

(See ICAO term CONTROLLER.)

**AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER-** An Air Traffic Tactical Operations facility consisting of four operational units.

a. Central Flow Control Function (CFCF). Responsible for coordination and approval of all major intercenter flow control restrictions on a system basis in order to obtain maximum utilization of the airspace.

(See QUOTA FLOW CONTROL.)

b. Central Altitude Reservation Function (CARF). Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept.

(See ALTITUDE RESERVATION.)

c. Airport Reservation Office (ARO). Responsible for approving IFR flights at designated high density traffic airports (John F. Kennedy, LaGuardia, O'Hare, and Washington National) during specified hours.

(Refer to FAR Part 93.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

d. ATC Contingency Command Post. A facility which enables the FAA to manage the ATC system when significant portions of the system's capabilities have been lost or are threatened.

**AIR TRAFFIC SERVICE-** A generic term meaning:

a. Flight Information Service:

b. Alerting Service:

c. Air Traffic Advisory Service:

d. Air Traffic Control Service:

1. Area Control Service,

2. Approach Control Service, or

3. Airport Control Service.

**AIRWAY-** A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids.

(See FEDERAL AIRWAYS.)

(Refer to FAR Part 71.)

(Refer to AIM.)

(See ICAO term AIRWAY.)

**AIRWAY [ICAO]-** A control area or portion thereof established in the form of corridor equipped with radio navigational aids.

**AIRWAY BEACON-** Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site.

(Refer to AIM.)

**AIT-**

(See AUTOMATED INFORMATION TRANSFER.)

**ALERFA (Alert Phase) [ICAO]-** A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

**ALERT AREA-**

(See SPECIAL USE AIRSPACE.)

**ALERT NOTICE-** A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.

**ALERTING SERVICE-** A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

**ALNOT-** (See ALERT NOTICE.)

**ALONG TRACK DISTANCE (LTD) -** The distance measured from a point-in-space by systems using area navigation reference capabilities that are not subject to slant range errors.

**ALPHANUMERIC DISPLAY-** Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a radar display.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(See NAS STAGE A.)

**ALTERNATE AERODROME [ICAO]-** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for the flight.

**ALTERNATE AIRPORT-** An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

(See ICAO term **ALTERNATE AERODROME**.)

**ALTIMETER SETTING-** The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92.)

(Refer to FAR Part 91.)

(Refer to AIM.)

**ALTITUDE-** The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL.)

(See **FLIGHT LEVEL**.)

**a. MSL Altitude-** Altitude expressed in feet measured from mean sea level.

**b. AGL Altitude-** Altitude expressed in feet measured above ground level.

**c. Indicated Altitude-** The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.

(See ICAO term **ALTITUDE**.)

**ALTITUDE [ICAO]-** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL.)

**ALTITUDE READOUT-** An aircraft's altitude, transmitted via the Mode C transponder feature, that is visually displayed in 100-foot increments on a radar scope having readout capability.

(See **AUTOMATED RADAR TERMINAL SYSTEMS**.)

(See **NAS STAGE A**.)

(See **ALPHANUMERIC DISPLAY**.)

(Refer to AIM.)

**ALTITUDE RESERVATION-** Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. **ALTRV's** are approved by the appropriate FAA facility.

(See **AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER**.)

**ALTITUDE RESTRICTION-** An altitude or altitudes, stated in the order flown, which are to be maintained until reaching a specific point or time. Altitude

restrictions may be issued by ATC due to traffic, terrain, or other airspace considerations.

**ALTITUDE RESTRICTIONS ARE CANCELED-**

Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

**ALTRV-**

(See **ALTITUDE RESERVATION**.)

**AMASS-**

(See **AIRPORT MOVEMENT AREA SAFETY SYSTEM**.)

**AMVER-**

(See **AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM**.)

**APPROACH CLEARANCE-** Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required.

(See **INSTRUMENT APPROACH PROCEDURE**.)

(See **CLEARED APPROACH**.)

(Refer to AIM and FAR Part 91.)

**APPROACH CONTROL FACILITY-** A terminal ATC facility that provides approach control service in a terminal area.

(See **APPROACH CONTROL SERVICE**.)

(See **RADAR APPROACH CONTROL FACILITY**.)

**APPROACH CONTROL SERVICE-** Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, en route aircraft. At some airports not served by an approach control facility, the ARTCC provides limited approach control service.

(Refer to AIM.)

(See ICAO term **APPROACH CONTROL SERVICE**.)

**APPROACH CONTROL SERVICE [ICAO]-** Air traffic control service for arriving or departing controlled flights.

**APPROACH GATE-** An imaginary point used within ATC as a basis for vectoring aircraft to the final approach course. The gate will be established along the final approach course 1 mile from the final approach fix on the side away from the airport and will be no closer than 5 miles from the landing threshold.

**APPROACH LIGHT SYSTEM-**

(See **AIRPORT LIGHTING**.)

**APPROACH SEQUENCE-** The order in which aircraft are positioned while on approach or awaiting approach clearance.

(See **LANDING SEQUENCE**.)

(See ICAO term **APPROACH SEQUENCE**.)

**APPROACH SEQUENCE [ICAO]-** The order in which two or more aircraft are cleared to approach to land at the aerodrome.

**APPROACH SPEED-** The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

**APPROPRIATE ATS AUTHORITY [ICAO]-** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned. In the United States, the "appropriate ATS authority" is the Program Director for Air Traffic Planning and Procedures, ATP-1.

**APPROPRIATE AUTHORITY-**

a. Regarding flight over the high seas: the relevant authority is the State of Registry.

b. Regarding flight over other than the high seas: the relevant authority is the State having sovereignty over the territory being overflown.

**APPROPRIATE OBSTACLE CLEARANCE MINIMUM ALTITUDE-** Any of the following:

(See Minimum IFR Altitude- MIA.)

(See Minimum En Route Altitude- MEA.)

(See Minimum Obstruction Clearance Altitude- MOCA.)

(See Minimum Vectoring Altitude- MVA.)

**APPROPRIATE TERRAIN CLEARANCE MINIMUM ALTITUDE-** Any of the following:

(See Minimum IFR Altitude- MIA.)

(See Minimum En Route Altitude- MEA.)

(See Minimum Obstruction Clearance Altitude- MOCA.)

(See Minimum Vectoring Altitude- MVA.)

**APRON-** A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.

(See ICAO term **APRON**.)

**APRON [ICAO]-** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of

loading or unloading passengers, mail or cargo, refueling, parking or maintenance.

**ARC-** The track over the ground of an aircraft flying at a constant distance from a navigational aid by reference to distance measuring equipment (DME).

**AREA CONTROL CENTER [ICAO]-** An ICAO term for an air traffic control facility primarily responsible for ATC services being provided IFR aircraft during the en route phase of flight. The U.S. equivalent facility is an air route traffic control center (ARTCC).

**AREA NAVIGATION-** Area Navigation (RNAV) provides enhanced navigational capability to the pilot. RNAV equipment can compute the airplane position, actual track and ground speed and then provide meaningful information relative to a route of flight selected by the pilot. Typical equipment will provide the pilot with distance, time, bearing and crosstrack error relative to the selected "TO" or "active" waypoint and the selected route. Several distinctly different navigational systems with different navigational performance characteristics are capable of providing area navigational functions. Present day RNAV includes INS, LORAN, VOR/DME, and GPS systems. Modern multi-sensor systems can integrate one or more of the above systems to provide a more accurate and reliable navigational system. Due to the different levels of performance, area navigational capabilities can satisfy different levels of required navigational performance (RNP). The major types of equipment are:

a. VORTAC referenced or Course Line Computer (CLC) systems, which account for the greatest number of RNAV units in use. To function, the CLC must be within the service range of a VORTAC.

b. OMEGA/VLF, although two separate systems, can be considered as one operationally. A long-range navigation system based upon Very Low Frequency radio signals transmitted from a total of 17 stations worldwide.

c. Inertial (INS) systems, which are totally self-contained and require no information from external references. They provide aircraft position and navigation information in response to signals resulting from inertial effects on components within the system.

d. MLS Area Navigation (MLS/RNAV), which provides area navigation with reference to an MLS ground facility.

e. LORAN-C is a long-range radio navigation system that uses ground waves transmitted at low frequency to provide user position information at ranges of up to 600

to 1,200 nautical miles at both en route and approach altitudes. The usable signal coverage areas are determined by the signal-to-noise ratio, the envelope-to-cycle difference, and the geometric relationship between the positions of the user and the transmitting stations.

f. GPS-is a space-base radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly equipped users. The system is unaffected by weather, and provides a worldwide common grid reference system.

(See ICAO term AREA NAVIGATION.)

**AREA NAVIGATION [ICAO]-** A method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

**AREA NAVIGATION (RNAV) APPROACH CONFIGURATION:**

a. **STANDARD T-** An RNAV approach whose design allows direct flight to any one of three initial approach fixes (IAF) and eliminates the need for procedure turns. The standard design is to align the procedure on the extended centerline with the missed approach point (MAP) at the runway threshold, the final approach fix (FAF), and the initial approach/intermediate fix (IAF/IF). The other two IAF's will be established perpendicular to the IF.

b. **MODIFIED T-** An RNAV approach design for single or multiple runways where terrain or operational constraints do not allow for the standard T. The "T" may be modified by increasing or decreasing the angle from the corner IAF(s) to the IF or by eliminating one or both corner IAF's.

c. **STANDARD I-** An RNAV approach design for a single runway with both corner IAF's eliminated. Course reversal or radar vectoring may be required at busy terminals with multiple runways.

d. **TERMINAL ARRIVAL AREA (TAA)-** The TAA is controlled airspace established in conjunction with the Standard or Modified T and I RNAV approach configurations. In the standard TAA, there are three areas: straight-in, left base, and right base. The arc

boundaries of the three areas of the TAA are published portions of the approach and allow aircraft to transition from the en route structure direct to the nearest IAF. TAA's will also eliminate or reduce feeder routes, departure extensions, and procedure turns or course reversal.

1. **STRAIGHT-IN AREA-** A 30NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

2. **LEFT BASE AREA-** A 30NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

3. **RIGHT BASE AREA-** A 30NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

**ARINC-** An acronym for Aeronautical Radio, Inc., a corporation largely owned by a group of airlines. ARINC is licensed by the FCC as an aeronautical station and contracted by the FAA to provide communications support for air traffic control and meteorological services in portions of international airspace.

**ARMY AVIATION FLIGHT INFORMATION BULLETIN-** A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

**ARO-**

(See AIRPORT RESERVATION OFFICE.)

**ARRESTING SYSTEM-** A safety device consisting of two major components, namely, engaging or catching devices and energy absorption devices for the purpose of arresting both tailhook and/or nontailhook-equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted takeoff. Arresting systems have various names; e.g., arresting gear, hook device, wire barrier cable.

(See ABORT.)

(Refer to AIM.)

**ARRIVAL AIRCRAFT INTERVAL-** An internally generated program in hundredths of minutes based

upon the AAR. AAI is the desired optimum interval between successive arrival aircraft over the vertex.

**ARRIVAL CENTER-** The ARTCC having jurisdiction for the impacted airport.

**ARRIVAL DELAY-** A parameter which specifies a period of time in which no aircraft will be metered for arrival at the specified airport.

**ARRIVAL SECTOR-** An operational control sector containing one or more meter fixes.

**ARRIVAL SECTOR ADVISORY LIST-** An ordered list of data on arrivals displayed at the PVD/MDM of the sector which controls the meter fix.

**ARRIVAL SEQUENCING PROGRAM-** The automated program designed to assist in sequencing aircraft destined for the same airport.

**ARRIVAL TIME-** The time an aircraft touches down on arrival.

**ARSR-**  
(See AIR ROUTE SURVEILLANCE RADAR.)

**ARTCC-**  
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

**ARTS-**  
(See AUTOMATED RADAR TERMINAL SYSTEMS.)

**ASDA-**  
(See ACCELERATE-STOP DISTANCE AVAILABLE.)

**ASDA [ICAO]-**  
(See ICAO Term ACCELERATE-STOP DISTANCE AVAILABLE.)

**ASDE-**  
(See AIRPORT SURFACE DETECTION EQUIPMENT.)

**ASLAR-**  
(See AIRCRAFT SURGE LAUNCH AND RECOVERY.)

**ASP-**  
(See ARRIVAL SEQUENCING PROGRAM.)

**ASR-**  
(See AIRPORT SURVEILLANCE RADAR.)

**ASR APPROACH-**  
(See SURVEILLANCE APPROACH.)

**ATC-**  
(See AIR TRAFFIC CONTROL.)

**ATCAA-**  
(See ATC ASSIGNED AIRSPACE.)

**ATC ADVISES-** Used to prefix a message of noncontrol information when it is relayed to an aircraft by other than an air traffic controller.

(See ADVISORY.)

**ATC ASSIGNED AIRSPACE-** Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.

(See SPECIAL USE AIRSPACE.)

**ATC CLEARANCE-**  
(See AIR TRAFFIC CLEARANCE.)

**ATC CLEARS-** Used to prefix an ATC clearance when it is relayed to an aircraft by other than an air traffic controller.

**ATC INSTRUCTIONS-** Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions; e.g., "Turn left heading two five zero," "Go around," "Clear the runway."  
(Refer to FAR Part 91.)

**ATCRBS-**  
(See RADAR.)

**ATC REQUESTS-** Used to prefix an ATC request when it is relayed to an aircraft by other than an air traffic controller.

**ATCSCC-**  
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

**ATCSCC DELAY FACTOR-** The amount of delay calculated to be assigned prior to departure.

**ATCT-**  
(See TOWER.)

**ATIS-**  
(See AUTOMATIC TERMINAL INFORMATION SERVICE.)

**ATIS [ICAO]-**  
(See ICAO Term AUTOMATIC TERMINAL INFORMATION SERVICE.)

**ATS Route [ICAO]-** A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note: The term "ATS Route" is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure, etc.

**ATTS-**  
(See AUTOMATED TERMINAL TRACKING SYSTEM.)

**AUTOLAND APPROACH-** An autoland approach is a precision instrument approach to touchdown and, in

some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment.

(See COUPLED APPROACH.)

Note: Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

**AUTOMATED INFORMATION TRANSFER-** A pre-coordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

**AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM-** A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.

(See FAAO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

**AUTOMATED RADAR TERMINAL SYSTEMS-** The generic term for the ultimate in functional capability afforded by several automation systems. Each differs in functional capabilities and equipment. ARTS plus a suffix roman numeral denotes a specific system. A following letter indicates a major modification to that system. In general, an ARTS displays for the terminal controller aircraft identification, flight plan data, other flight associated information; e.g., altitude, speed, and aircraft position symbols in conjunction with his radar presentation. Normal radar co-exists with the alphanumeric display. In addition to enhancing visualization of the air traffic situation, ARTS facilitate intra/inter-facility transfer and coordination of flight information. These capabilities are enabled by specially designed computers and subsystems tailored to the radar and communications equipments and operational requirements of each automated facility. Modular design permits adoption of improvements in computer software and electronic technologies as they become available while retaining the characteristics unique to each system.

a. ARTS II. A programmable nontracking, computer-aided display subsystem capable of modular expansion. ARTS II systems provide a level of automated air

traffic control capability at terminals having low to medium activity. Flight identification and altitude may be associated with the display of secondary radar targets. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.

b. ARTS IIA. A programmable radar-tracking computer subsystem capable of modular expansion. The ARTS IIA detects, tracks, and predicts secondary radar targets. The targets are displayed by means of computer-generated symbols, ground speed, and flight plan data. Although it does not track primary radar targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.

c. ARTS III. The Beacon Tracking Level of the modular programmable automated radar terminal system in use at medium to high activity terminals. ARTS III detects, tracks, and predicts secondary radar-derived aircraft targets. These are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although it does not track primary targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS III facilities.

d. ARTS IIIA. The Radar Tracking and Beacon Tracking Level (RT&BTL) of the modular, programmable automated radar terminal system. ARTS IIIA detects, tracks, and predicts primary as well as secondary radar-derived aircraft targets. This more sophisticated computer-driven system upgrades the existing ARTS III system by providing improved tracking, continuous data recording, and fail-soft capabilities.

**AUTOMATED TERMINAL TRACKING SYSTEM (ATTS)-** ATTS is used to identify the numerous tracking systems including ARTS IIA, ARTS IIE, ARTS IIIA, ARTS IIIE, STARS, and M-EARTS.

**AUTOMATIC ALTITUDE REPORT-**

(See ALTITUDE READOUT.)

**AUTOMATIC ALTITUDE REPORTING-** That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

**AUTOMATIC CARRIER LANDING SYSTEM-** U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to

provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

**AUTOMATIC DIRECTION FINDER-** An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.

(See BEARING.)

(See NONDIRECTIONAL BEACON.)

**AUTOMATIC TERMINAL INFORMATION SERVICE-** The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two nine nine six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."

(Refer to AIM.)

(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)

**AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]-** The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the

day or a specified portion of the day.

**AUTOROTATION-** A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

a. **Autorotative Landing/Touchdown Autorotation.** Used by a pilot to indicate that the landing will be made without applying power to the rotor.

b. **Low Level Autorotation.** Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

c. **180 degrees Autorotation.** Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

**AVAILABLE LANDING DISTANCE (ALD)-** The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

**AVIATION WEATHER SERVICE-** A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and forecasts are displayed at each NWS office and FAA FSS.

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

(See TRANSCRIBED WEATHER BROADCAST.)

(See WEATHER ADVISORY.)

(Refer to AIM.)

**AWW-**

(See SEVERE WEATHER FORECAST ALERTS.)

**AZIMUTH (MLS)-** A magnetic bearing extending from an MLS navigation facility.

Note: azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications.



# C

**CALCULATED LANDING TIME-** A term that may be used in place of tentative or actual calculated landing time, whichever applies.

**CALL UP-** Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call.

(Refer to AIM.)

**CALL FOR RELEASE-** Wherein the overlying ARTCC requires a terminal facility to initiate verbal coordination to secure ARTCC approval for release of a departure into the en route environment.

**CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE-** That portion of Canadian domestic airspace within which MNPS separation may be applied.

**CARDINAL ALTITUDES-** "Odd" or "Even" thousand-foot altitudes or flight levels; e.g., 5,000, 6,000, 7,000, FL 250, FL 260, FL 270.

(See ALTITUDE.)

(See FLIGHT LEVEL.)

**CARDINAL FLIGHT LEVELS-**

(See CARDINAL ALTITUDES.)

**CAT-**

(See CLEAR-AIR TURBULENCE.)

**CDT PROGRAMS-**

(See CONTROLLED DEPARTURE TIME PROGRAMS.)

**CEILING-** The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial."

(See ICAO term CEILING.)

**CEILING [ICAO]-** The height above the ground or water of the base of the lowest layer of cloud below 6,000 meters (20,000 feet) covering more than half the sky.

**CENRAP-**

(See CENTER RADAR ARTS PRESENTATION/PROCESSING.)

**CENRAP-PLUS-**

(See CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS.)

**CENTER-**

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

**CENTER'S AREA-** The specified airspace within which an air route traffic control center (ARTCC) provides air traffic control and advisory service.

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(Refer to AIM.)

**CENTER RADAR ARTS PRESENTATION/PROCESSING-** A computer program developed to provide a back-up system for airport surveillance radar in the event of a failure or malfunction. The program uses air route traffic control center radar for the processing and presentation of data on the ARTS IIA or IIA displays.

**CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS-** A computer program developed to provide a back-up system for airport surveillance radar in the event of a terminal secondary radar system failure. The program uses a combination of Air Route Traffic Control Center Radar and terminal airport surveillance radar primary targets displayed simultaneously for the processing and presentation of data on the ARTS IIA or IIA displays.

**CENTER WEATHER ADVISORY-** An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine a SIGMET.

(See AWW.)

(See SIGMET.)

(See CONVECTIVE SIGMET.)

(See AIRMET.)

(Refer to AIM.)

**CENTRAL EAST PACIFIC-** An organized route system between the U.S. West Coast and Hawaii.

**CEP-**

(See CENTRAL EAST PACIFIC.)

**CERAP-**

(See COMBINED CENTER-RAPCON.)

**CERTIFIED TOWER RADAR DISPLAY (CTRD)-** A radar display that provides a presentation of primary, beacon radar videos, and alphanumeric data from an Air Traffic Control radar system, which is certified by the FAA to provide radar services. Examples include Digital Bright Radar Indicator Tower Equipment

**(DBRITE), Tower Display Workstation (TDW) and BRITE.**

**CFR-**

(See CALL FOR RELEASE.)

**CHAFF-** Thin, narrow metallic reflectors of various lengths and frequency responses, used to reflect radar energy. These reflectors when dropped from aircraft and allowed to drift downward result in large targets on the radar display.

**CHARTED VFR FLYWAYS-** Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

**CHARTED VISUAL FLIGHT PROCEDURE APPROACH-** An approach conducted while operating on an instrument flight rules (IFR) flight plan which authorizes the pilot of an aircraft to proceed visually and clear of clouds to the airport via visual landmarks and other information depicted on a charted visual flight procedure. This approach must be authorized and under the control of the appropriate air traffic control facility. Weather minimums required are depicted on the chart.

**CHASE-** An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

**CHASE AIRCRAFT-**

(See CHASE.)

**CIRCLE-TO-LAND MANEUVER-** A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. At tower controlled airports, this maneuver is made only after ATC authorization has been obtained and the pilot has established required visual reference to the airport.

(See CIRCLE TO RUNWAY.)

(See LANDING MINIMUMS.)

(Refer to AIM.)

**CIRCLE TO RUNWAY (RUNWAY NUMBER)-** Used by ATC to inform the pilot that he must circle to land because the runway in use is other than the runway aligned with the instrument approach procedure. When the direction of the circling maneuver in relation to the airport/runway is required, the controller will state the direction (eight cardinal compass points) and specify a left or right downwind or base leg as appropriate; e.g., "Cleared VOR Runway Three Six Approach circle to

Runway Two Two," or "Circle northwest of the airport for a right downwind to Runway Two Two."

(See CIRCLE-TO-LAND MANEUVER.)

(See LANDING MINIMUMS.)

(Refer to AIM.)

**CIRCLING APPROACH-**

(See CIRCLE-TO-LAND MANEUVER.)

**CIRCLING MANEUVER-**

(See CIRCLE-TO-LAND MANEUVER.)

**CIRCLING MINIMA-**

(See LANDING MINIMUMS.)

**CLASS A AIRSPACE-**

(See CONTROLLED AIRSPACE)

**CLASS B AIRSPACE-**

(See CONTROLLED AIRSPACE)

**CLASS C AIRSPACE-**

(See CONTROLLED AIRSPACE)

**CLASS D AIRSPACE-**

(See CONTROLLED AIRSPACE)

**CLASS E AIRSPACE-**

(See CONTROLLED AIRSPACE)

**CLASS G AIRSPACE-** That airspace not designated as Class A, B, C, D or E.

**CLEAR-AIR TURBULENCE-** Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream.

(See WIND SHEAR.)

(See JET STREAM.)

**CLEAR OF THE RUNWAY-**

a. A taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the aircraft are held short of the applicable holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there is no ATC restriction to its continued movement beyond the applicable holding position marking.

c. Pilots and controllers shall exercise good judgment to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

**CLEARANCE-**

(See AIR TRAFFIC CLEARANCE.)

**CLEARANCE LIMIT-** The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

(See ICAO term **CLEARANCE LIMIT**.)

**CLEARANCE LIMIT [ICAO]-** The point of which an aircraft is granted an air traffic control clearance.

***CLEARANCE VOID IF NOT OFF BY (TIME)-***

Used by ATC to advise an aircraft that the departure clearance is automatically canceled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his IFR flight plan if not off by the specified time.

(See ICAO term **CLEARANCE VOID TIME**.)

**CLEARANCE VOID TIME [ICAO]-** A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

***CLEARED AS FILED-*** Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the altitude, DP, or DP Transition.

(See **REQUEST FULL ROUTE CLEARANCE**.)

(Refer to AIM.)

***CLEARED (Type Of) APPROACH-*** ATC authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared ILS Runway Three Six Approach."

(See **INSTRUMENT APPROACH PROCEDURE**.)

(See **APPROACH CLEARANCE**.)

(Refer to AIM.)

(Refer to FAR Part 91.)

***CLEARED APPROACH-*** ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure.

(See **INSTRUMENT APPROACH PROCEDURE**.)

(See **CLEARED (TYPE OF) APPROACH**.)

(Refer to AIM.)

(Refer to Part 91.)

***CLEARED FOR TAKEOFF-*** ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

***CLEARED FOR THE OPTION-*** ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so

that an instructor can evaluate a student's performance under changing situations.

(See **OPTION APPROACH**.)

(Refer to AIM.)

***CLEARED THROUGH-*** ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

***CLEARED TO LAND-*** ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

**CLEARWAY-** An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated.

(Refer to FAR Part 1.)

**CLIMBOUT-** That portion of flight operation between takeoff and the initial cruising altitude.

***CLIMB TO VFR-*** ATC authorization for an aircraft to climb to VFR conditions within Class B, C, D, and E surface areas when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR.

(See **SPECIAL VFR**.)

(Refer to AIM.)

**CLOUD-** A cloud is a visible accumulation of minute water droplets and/or ice particles in the atmosphere above the Earth's surface. Cloud differs from ground fog, fog, or ice fog only in that the latter are, by definition, in contact with the Earth's surface.

**CLOSE PARALLEL RUNWAYS-** Two parallel runways whose extended centerlines are separated by less than 4,300 feet, having a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

**CLOSED RUNWAY-** A runway that is unusable for aircraft operations. Only the airport management/military operations office can close a runway.

**CLOSED TRAFFIC-** Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

**CLT-**

(See **CALCULATED LANDING TIME**.)

**CLUTTER-** In radar operations, clutter refers to the reception and visual display of radar returns caused by

precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or preclude ATC from providing services based on radar.

(See GROUND CLUTTER.)

(See CHAFF.)

(See PRECIPITATION.)

(See TARGET.)

(See ICAO term Radar Clutter.)

#### CMNPS-

(See CANADIAN MINIMUM NAVIGATION  
PERFORMANCE SPECIFICATION AIRSPACE.)

**COASTAL FIX-** A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

**CODES-** The number assigned to a particular multiple pulse reply signal transmitted by a transponder.

(See DISCRETE CODE.)

**COMBINED CENTER-RAPCON-** An air traffic facility which combines the functions of an ARTCC and a radar approach control facility.

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(See RADAR APPROACH CONTROL FACILITY.)

**COMMON POINT-** A significant point over which two or more aircraft will report passing or have reported passing before proceeding on the same or diverging tracks. To establish/maintain longitudinal separation, a controller may determine a common point not originally in the aircraft's flight plan and then clear the aircraft to fly over the point.

(See SIGNIFICANT POINT.)

#### COMMON PORTION-

(See COMMON ROUTE.)

**COMMON ROUTE-** That segment of a North American Route between the inland navigation facility and the coastal fix.

**COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)-** A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.

(Refer to AC 90-42, Traffic Advisory Practices at  
Airports Without Operating Control Towers.)

**COMPASS LOCATOR-** A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing

system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

**a. Outer Compass Locator (LOM)-** A compass locator installed at the site of the outer marker of an instrument landing system.

(See OUTER MARKER.)

**b. Middle Compass Locator (LMM)-** A compass locator installed at the site of the middle marker of an instrument landing system.

(See MIDDLE MARKER.)

(See ICAO term LOCATOR.)

**COMPASS ROSE-** A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

**COMPOSITE FLIGHT PLAN-** A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations.

(Refer to AIM.)

**COMPOSITE ROUTE SYSTEM-** An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

**COMPOSITE SEPARATION-** A method of separating aircraft in a composite route system where, by management of route and altitude assignments, a combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

**COMPULSORY REPORTING POINTS-** Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in "radar contact."

**CONFLICT ALERT-** A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets (known IFR or VFR aircraft) that require his/her immediate attention/action.

(See MODE C INTRUDER ALERT.)

**CONFLICT RESOLUTION-** The resolution of potential conflicts between aircraft that are radar identified and in communication with ATC by ensuring that

latitude and longitude, used to determine position or location.

**COORDINATION FIX-** The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

**COPTER-** (See **HELICOPTER**.)

**CORRECTION-** An error has been made in the transmission and the correct version follows.

**COUPLED APPROACH-** A coupled approach is an instrument approach performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment. In general, coupled nonprecision approaches must be discontinued and flown manually at altitudes lower than 50 feet below the minimum descent altitude, and coupled precision approaches must be flown manually below 50 feet AGL.

(See **AUTOLAND APPROACH**.)

Note: Coupled and autoland approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

**COURSE-**

a. The intended direction of flight in the horizontal plane measured in degrees from north.

b. The ILS localizer signal pattern usually specified as the front course or the back course.

c. The intended track along a straight, curved, or segmented MLS path.

(See **BEARING**.)

(See **RADIAL**.)

(See **INSTRUMENT LANDING SYSTEM**.)

(See **MICROWAVE LANDING SYSTEM**.)

**CPL [ICAO]-**

(See **CURRENT FLIGHT PLAN**.)

**CRITICAL ENGINE-** The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

**CROSS (FIX) AT (ALTITUDE)-** Used by ATC when a specific altitude restriction at a specified fix is required.

**CROSS (FIX) AT OR ABOVE (ALTITUDE)-** Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the

higher altitude may not be one that will violate a succeeding altitude restriction or altitude assignment.

(See **ALTITUDE RESTRICTION**.)

(Refer to **AIM**.)

**CROSS (FIX) AT OR BELOW (ALTITUDE)-** Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude.

(See **MINIMUM IFR ALTITUDES**.)

(See **ALTITUDE RESTRICTION**.)

(Refer to **FAR Part 91**.)

**CROSSWIND-**

a. When used concerning the traffic pattern, the word means "crosswind leg."

(See **TRAFFIC PATTERN**.)

b. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

(See **CROSSWIND COMPONENT**.)

**CROSSWIND COMPONENT-** The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

**CRUISE-** Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

a. An airport clearance limit at locations with a standard/special instrument approach procedure. The FAR's require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or

b. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does it imply that ATC is exercising control over aircraft in Class G airspace; however, it provides a means for the aircraft to proceed

to destination airport, descend, and land in accordance with applicable FAR's governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed.

(See INSTRUMENT APPROACH PROCEDURE.)

**CRUISING ALTITUDE-** An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.

(See ALTITUDE.)

(See ICAO term CRUISING LEVEL.)

**CRUISING LEVEL [ICAO]-** A level maintained during a significant portion of a flight.

**CRUISE CLIMB-** A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

**CRUISING LEVEL-**

(See CRUISING ALTITUDE.)

**CT MESSAGE-** An EDCT time generated by the ATCSCC to regulate traffic at arrival airports. Normally, a CT message is automatically transferred from the

Traffic Management System computer to the NAS en route computer and appears as an EDCT. In the event of a communication failure between the TMS and the NAS, the CT message can be manually entered by the TMC at the en route facility.

**CTA-**

(See CONTROLLED TIME OF ARRIVAL.)

(See CONTROL AREA [ICAO].)

**CTAF-**

(See COMMON TRAFFIC ADVISORY  
FREQUENCY.)

**CTRD-**

(See CERTIFIED TOWER RADAR DISPLAY.)

**CURRENT FLIGHT PLAN [ICAO]-** The flight plan, including changes, if any, brought about by subsequent clearances.

**CVFP APPROACH-**

(See CHARTED VISUAL FLIGHT PROCEDURE  
APPROACH.)

**CWA-**

(See CENTER WEATHER ADVISORY and  
WEATHER ADVISORY.)

**DISCRETE FREQUENCY-** A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.

(See CONTROL SECTOR.)

**DISPLACED THRESHOLD-** A threshold that is located at a point on the runway other than the designated beginning of the runway.

(See THRESHOLD.)

(Refer to AIM.)

**DISTANCE MEASURING EQUIPMENT-** Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

(See TACAN.)

(See VORTAC.)

(See MICROWAVE LANDING SYSTEM.)

**DISTRESS-** A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

**DIVE BRAKES-**

(See SPEED BRAKES.)

**DIVERSE VECTOR AREA-** In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

**DME-**

(See DISTANCE MEASURING EQUIPMENT.)

**DME FIX-** A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid.

(See DISTANCE MEASURING EQUIPMENT.)

(See FIX.)

(See MICROWAVE LANDING SYSTEM.)

**DME SEPARATION-** Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME).

(See DISTANCE MEASURING EQUIPMENT.)

**DOD FLIP-** Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the National Imagery and Mapping Agency (NIMA) for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DOD FLIP for use in the National Airspace System (NAS).

**DOMESTIC AIRSPACE-** Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 12 miles offshore.

**DOWNBURST-** A strong downdraft which induces an outburst of damaging winds on or near the ground. Damaging winds, either straight or curved, are highly divergent. The sizes of downbursts vary from 1/2 mile or less to more than 10 miles. An intense downburst often causes widespread damage. Damaging winds, lasting 5 to 30 minutes, could reach speeds as high as 120 knots.

**DOWNWIND LEG-**

(See TRAFFIC PATTERN.)

**DP-**

(See INSTRUMENT DEPARTURE PROCEDURE.)

**DRAG CHUTE-** A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

**DSP-**

(See DEPARTURE SEQUENCING PROGRAM.)

**DT-**

(See DELAY TIME.)

**DUE REGARD-** A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility to separate his aircraft from all other aircraft.

(See also FAO 7110.65, Para 1-2-1, WORD MEANINGS.)

**DUTY RUNWAY-**

(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

**DVA-**

(See DIVERSE VECTOR AREA.)

**DVFR-**

(See DEFENSE VISUAL FLIGHT RULES.)

**DVFR FLIGHT PLAN-** A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

**DYNAMIC-** Continuous review, evaluation, and change to meet demands.

**DYNAMIC RESTRICTIONS-** Those restrictions imposed by the local facility on an “as needed” basis to manage unpredictable fluctuations in traffic demands.



# E

## EDCT-

(See EXPECTED DEPARTURE CLEARANCE TIME.)

## EFC-

(See EXPECT FURTHER CLEARANCE (TIME).)

## ELT-

(See EMERGENCY LOCATOR TRANSMITTER.)

**EMERGENCY-** A distress or an urgency condition.

**EMERGENCY LOCATOR TRANSMITTER-** A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.

(Refer to FAR Part 91.)

(Refer to AIM.)

## E-MSAW-

(See EN ROUTE MINIMUM SAFE ALTITUDE WARNING.)

**ENGINEERED PERFORMANCE STANDARDS-** A mathematically derived runway capacity standard. EPS's are calculated for each airport on an individual basis and reflect that airport's aircraft mix, operating procedures, runway layout, and specific weather conditions. EPS's do not give consideration to staffing, experience levels, equipment outages, and in-trail restrictions as does the AAR.

**EN ROUTE AIR TRAFFIC CONTROL SERVICES-** Air traffic control service provided aircraft on IFR flight plans, generally by centers, when these aircraft are operating between departure and destination terminal areas. When equipment, capabilities, and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.

(See NAS STAGE A.)

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(Refer to AIM.)

## EN ROUTE CHARTS-

(See AERONAUTICAL CHART.)

**EN ROUTE DESCENT-** Descent from the en route cruising altitude which takes place along the route of flight.

**EN ROUTE FLIGHT ADVISORY SERVICE-** A service specifically designed to provide, upon pilot request, timely weather information pertinent to his type of flight, intended route of flight, and altitude. The FSS's providing this service are listed in the Airport/Facility Directory.

(See FLIGHT WATCH.)

(Refer to AIM.)

## EN ROUTE HIGH ALTITUDE CHARTS-

(See AERONAUTICAL CHART.)

## EN ROUTE LOW ALTITUDE CHARTS-

(See AERONAUTICAL CHART.)

**EN ROUTE MINIMUM SAFE ALTITUDE WARNING-** A function of the NAS Stage A en route computer that aids the controller by alerting him when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

**EN ROUTE SPACING PROGRAM-** A program designed to assist the exit sector in achieving the required in-trail spacing.

## EPS-

(See ENGINEERED PERFORMANCE STANDARDS.)

## ESP-

(See EN ROUTE SPACING PROGRAM.)

**ESTABLISHED-** To be stable or fixed on a route, route segment, altitude, heading, etc.

**ESTIMATED ELAPSED TIME [ICAO]-** The estimated time required to proceed from one significant point to another.

(See ICAO Term TOTAL ESTIMATED ELAPSED TIME.)

**ESTIMATED OFF-BLOCK TIME [ICAO]-** The estimated time at which the aircraft will commence movement associated with departure.

## ESTIMATED POSITION ERROR (EPE)-

(See Required Navigation Performance)

**ESTIMATED TIME OF ARRIVAL-** The time the flight is estimated to arrive at the gate (scheduled

operators) or the actual runway on times for nonscheduled operators.

**ESTIMATED TIME EN ROUTE-** The estimated flying time from departure point to destination (lift-off to touchdown).

**ETA-**

(See **ESTIMATED TIME OF ARRIVAL**.)

**ETE-**

(See **ESTIMATED TIME EN ROUTE**.)

**EXECUTE MISSED APPROACH-** Instructions issued to a pilot making an instrument approach which means continue inbound to the missed approach point and execute the missed approach procedure as described on the Instrument Approach Procedure Chart or as previously assigned by ATC. The pilot may climb immediately to the altitude specified in the missed approach procedure upon making a missed approach. No turns should be initiated prior to reaching the missed approach point. When conducting an ASR or PAR approach, execute the assigned missed approach procedure immediately upon receiving instructions to "execute missed approach."

(Refer to AIM.)

**EXPECT (ALTITUDE) AT (TIME) or (FIX)-** Used under certain conditions to provide a pilot with an altitude to be used in the event of two-way communications failure. It also provides altitude information to assist the pilot in planning.

(Refer to AIM.)

**EXPECTED DEPARTURE CLEARANCE TIME-** The runway release time assigned to an aircraft in a controlled departure time program and shown on the flight progress strip as an EDCT.

**EXPECT FURTHER CLEARANCE (TIME)-** The time a pilot can expect to receive clearance beyond a clearance limit.

**EXPECT FURTHER CLEARANCE VIA (AIRWAYS, ROUTES OR FIXES)-** Used to inform a pilot of the routing he can expect if any part of the route beyond a short range clearance limit differs from that filed.

**EXPEDITE-** Used by ATC when prompt compliance is required to avoid the development of an imminent situation. Expedite climb/descent normally indicates to a pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristics.

Check 320 recorded" to indicate that an automated flight inspection is in progress in terminal areas.

(See FLIGHT INSPECTION.)

(Refer to AIM.)

#### FLIGHT FOLLOWING-

(See TRAFFIC ADVISORIES.)

**FLIGHT INFORMATION REGION-** An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.

**a. Flight Information Service.** A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

**b. Alerting Service.** A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

**FLIGHT INFORMATION SERVICE-** A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

**FLIGHT INSPECTION-** Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances.

(See NAVIGATIONAL AID.)

(See FLIGHT CHECK.)

**FLIGHT LEVEL-** A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

(See ICAO term FLIGHT LEVEL.)

**FLIGHT LEVEL [ICAO]-** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

**Note 1:** A pressure type altimeter calibrated in accordance with the standard atmosphere:

**a.** When set to a QNH altimeter setting, will indicate altitude;

**b.** When set to a QFE altimeter setting, will indicate height above the QFE reference datum; and

**c.** When set to a pressure of 1013.2 hPa (1013.2 mb), may be used to indicate flight levels.

**Note 2:** The terms 'height' and 'altitude,' used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

**FLIGHT LINE-** A term used to describe the precise movement of a civil photogrammetric aircraft along a predetermined course(s) at a predetermined altitude during the actual photographic run.

**FLIGHT MANAGEMENT SYSTEMS-** A computer system that uses a large data base to allow routes to be preprogrammed and fed into the system by means of a data loader. The system is constantly updated with respect to position accuracy by reference to conventional navigation aids. The sophisticated program and its associated data base insures that the most appropriate aids are automatically selected during the information update cycle.

**FLIGHT MANAGEMENT SYSTEM PROCEDURE-** An arrival, departure, or approach procedure developed for use by aircraft with a slant (/) E or slant (/) F equipment suffix.

**FLIGHT PATH-** A line, course, or track along which an aircraft is flying or intended to be flown.

(See TRACK.)

(See COURSE.)

**FLIGHT PLAN-** Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an FSS or an ATC facility.

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

**FLIGHT PLAN AREA-** The geographical area assigned by regional air traffic divisions to a flight service station for the purpose of search and rescue for VFR aircraft, issuance of NOTAMs, pilot briefing, in-flight services, broadcast, emergency services, flight data processing, international operations, and aviation weather services. Three letter identifiers are assigned to every flight service station and are annotated in AFD's and FAAO 7350.7, LOCATION IDENTIFIERS, as tie-in-facilities.

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

**FLIGHT RECORDER-** A general term applied to any instrument or device that records information about the performance of an aircraft in flight or about conditions encountered in flight. Flight recorders may make records of airspeed, outside air temperature, vertical acceleration, engine RPM, manifold pressure, and other pertinent variables for a given flight.

(See ICAO term FLIGHT RECORDER.)

**FLIGHT RECORDER [ICAO]**- Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Note: See Annex 6 Part I, for specifications relating to flight recorders.

**FLIGHT SERVICE STATION**- Air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAID's. In addition, at selected locations, FSS's provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

(Refer to AIM.)

**FLIGHT STANDARDS DISTRICT OFFICE**- An FAA field office serving an assigned geographical area and staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operational safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

**FLIGHT TEST**- A flight for the purpose of:

a. Investigating the operation/flight characteristics of an aircraft or aircraft component.

b. Evaluating an applicant for a pilot certificate or rating.

**FLIGHT VISIBILITY**-

(See VISIBILITY.)

**FLIGHT WATCH**- A shortened term for use in air-ground contacts to identify the flight service station providing En Route Flight Advisory Service; e.g., "Oakland Flight Watch."

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

**FLIP**-

(See DOD FLIP.)

**FLOW CONTROL**- Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome (airport) so as to ensure the most effective utilization of the airspace.

(See QUOTA FLOW CONTROL.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

**FLY-BY WAYPOINT**- A fly-by waypoint requires the use of turn anticipation to avoid overshoot of the next flight segment.

**FLY HEADING (DEGREES)**- Informs the pilot of the heading he should fly. The pilot may have to turn to, or continue on, a specific compass direction in order to comply with the instructions. The pilot is expected to turn in the shorter direction to the heading unless otherwise instructed by ATC.

**FLY-OVER WAYPOINT**- A fly-over waypoint precludes any turn until the waypoint is overflown and is followed by an intercept maneuver of the next flight segment.

**FMA**-

(See FINAL MONITOR AID.)

**FMS**-

(See FLIGHT MANAGEMENT SYSTEM.)

**FMSP**-

(See FLIGHT MANAGEMENT SYSTEM PROCEDURE.)

**FORMATION FLIGHT**- More than one aircraft which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join-up and break-away.

a. A standard formation is one in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each wingman.

b. Nonstandard formations are those operating under any of the following conditions:

1. When the flight leader has requested and ATC has approved other than standard formation dimensions.

2. When operating within an authorized altitude reservation (ALTRV) or under the provisions of a letter of agreement.

3. When the operations are conducted in airspace specifically designed for a special activity.

(See ALTITUDE RESERVATION.)

(Refer to FAR Part 91.)

**FRC**-

(See REQUEST FULL ROUTE CLEARANCE.)

# G

**GATE HOLD PROCEDURES-** Procedures at selected airports to hold aircraft at the gate or other ground location whenever departure delays exceed or are anticipated to exceed 15 minutes. The sequence for departure will be maintained in accordance with initial call-up unless modified by flow control restrictions. Pilots should monitor the ground control/clearance delivery frequency for engine start/taxi advisories or new proposed start/taxi time if the delay changes.

(See FLOW CONTROL.)

**GCA-**

(See GROUND CONTROLLED APPROACH.)

**GENERAL AVIATION-** That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from the Civil Aeronautics Board and large aircraft commercial operators.

(See ICAO term GENERAL AVIATION.)

**GENERAL AVIATION [ICAO]-** All civil aviation operations other than scheduled air services and nonscheduled air transport operations for remuneration or hire.

**GEO MAP-** The digitized map markings associated with the ASR-9 Radar System.

**GLIDEPATH-**

(See GLIDESLOPE.)

**GLIDEPATH INTERCEPT ALTITUDE-**

(See GLIDESLOPE INTERCEPT ALTITUDE.)

**GLIDESLOPE-** Provides vertical guidance for aircraft during approach and landing. The glideslope/glideslope is based on the following:

a. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or

b. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

c. PAR. Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

(See ICAO term GLIDEPATH.)

**GLIDEPATH [ICAO]-** A descent profile determined for vertical guidance during a final approach.

**GLIDESLOPE INTERCEPT ALTITUDE-** The minimum altitude to intercept the glideslope/path on a precision approach. The intersection of the published intercept altitude with the glideslope/path, designated on Government charts by the lightning bolt symbol, is the precision FAF; however, when the approach chart shows an alternative lower glideslope intercept altitude, and ATC directs a lower altitude, the resultant lower intercept position is then the FAF.

(See FINAL APPROACH FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**GLOBAL POSITIONING SYSTEM (GPS)-** A space-base radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly equipped users. The system is unaffected by weather, and provides a worldwide common grid reference system. The GPS concept is predicated upon accurate and continuous knowledge of the spatial position of each satellite in the system with respect to time and distance from a transmitting satellite to the user. The GPS receiver automatically selects appropriate signals from the satellites in view and translates these into three-dimensional position, velocity, and time. System accuracy for civil users is normally 100 meters horizontally.

**GO AHEAD-** Proceed with your message. Not to be used for any other purpose.

**GO AROUND-** Instructions for a pilot to abandon his approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the published missed approach procedure or proceed as instructed by ATC; e.g., "Go around" (additional instructions if required).

(See LOW APPROACH.)

(See MISSED APPROACH.)

**GPS-**

(See Global Positioning System.)

**GROUND CLUTTER-** A pattern produced on the radar scope by ground returns which may degrade other radar returns in the affected area. The effect of ground clutter is minimized by the use of moving target indicator (MTI) circuits in the radar equipment resulting in a radar presentation which displays only targets which are in motion.

(See CLUTTER.)

**GROUND COMMUNICATION OUTLET (GCO)-** An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to take-off. Pilots will use four "key clicks" on the VHF radio to contact the appropriate ATC facility or six "key clicks" to contact the FSS. The GCO system is intended to be used only on the ground.

**GROUND CONTROLLED APPROACH-** A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot

by radio. The approach may be conducted with surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR). Usage of the term "GCA" by pilots is discouraged except when referring to a GCA facility. Pilots should specifically request a "PAR" approach when a precision radar approach is desired or request an "ASR" or "surveillance" approach when a nonprecision radar approach is desired.

(See RADAR APPROACH.)

**GROUND DELAY-** The amount of delay attributed to ATC, encountered prior to departure, usually associated with a CDT program.

**GROUND SPEED-** The speed of an aircraft relative to the surface of the earth.

**GROUND STOP-** Normally, the last initiative to be utilized; this method mandates that the terminal facility will not allow any departures to enter the ARTCC airspace until further notified.

**GROUND VISIBILITY-**  
(See VISIBILITY.)

# I

**IAF-**

(See INITIAL APPROACH FIX.)

**IAP-**

(See INSTRUMENT APPROACH PROCEDURE.)

**IAWP-** Initial Approach Waypoint

**ICAO-**

(See ICAO Term INTERNATIONAL CIVIL AVIATION ORGANIZATION.)

**ICING-** The accumulation of airframe ice.

Types of icing are:

a. **Rime Ice-** Rough, milky, opaque ice formed by the instantaneous freezing of small supercooled water droplets.

b. **Clear Ice-** A glossy, clear, or translucent ice formed by the relatively slow freezing of large supercooled water droplets.

c. **Mixed-** A mixture of clear ice and rime ice.

Intensity of icing:

a. **Trace-** Ice becomes perceptible. Rate of accumulation is slightly greater than the rate of sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

b. **Light-** The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if the deicing/anti-icing equipment is used.

c. **Moderate-** The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or flight diversion is necessary.

d. **Severe-** The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate flight diversion is necessary.

**IDENT-** A request for a pilot to activate the aircraft transponder identification feature. This will help the controller to confirm an aircraft identity or to identify an aircraft.

(Refer to AIM.)

**IDENT FEATURE-** The special feature in the Air Traffic Control Radar Beacon System (ATCRBS)

equipment. It is used to immediately distinguish one displayed beacon target from other beacon targets.

(See IDENT.)

**IF-**

(See INTERMEDIATE FIX.)

**IFIM-**

(See INTERNATIONAL FLIGHT INFORMATION MANUAL.)

**IF NO TRANSMISSION RECEIVED FOR (TIME)-**

Used by ATC in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications.

(See LOST COMMUNICATIONS.)

**IFR-**

(See INSTRUMENT FLIGHT RULES.)

**IFR AIRCRAFT-** An aircraft conducting flight in accordance with instrument flight rules.

**IFR CONDITIONS-** Weather conditions below the minimum for flight under visual flight rules.

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

**IFR DEPARTURE PROCEDURE-**

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(Refer to AIM.)

**IFR FLIGHT-**

(See IFR AIRCRAFT.)

**IFR LANDING MINIMUMS-**

(See LANDING MINIMUMS.)

**IFR MILITARY TRAINING ROUTES (IR)-** Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

**IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES-** Federal Aviation Regulations, Part 91, prescribes standard takeoff rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums, departure procedures, or both to assist pilots in avoiding obstacles during climb to the minimum en route altitude. Those airports are listed in NOS/DOD Instrument Approach Charts (IAP's) under a section entitled "IFR Takeoff Minimums and Departure Proce-

dures." The NOS/DOD IAP chart legend illustrates the symbol used to alert the pilot to nonstandard takeoff minimums and departure procedures. When departing IFR from such airports or from any airports where there are no departure procedures, DP's, or ATC facilities available, pilots should advise ATC of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or headings after takeoff. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

**IF/IAWP-** Intermediate Fix/Initial Approach Waypoint. The waypoint where the final approach course of a T approach meets the crossbar of the T. When designated (in conjunction with a TAA) this waypoint will be used as an IAWP when approaching the airport from certain directions, and as an IFWP when beginning the approach from another IAWP.

**IFWP-** Intermediate Fix Waypoint

**ILS-**

(See INSTRUMENT LANDING SYSTEM.)

**ILS CATEGORIES-** 1. ILS Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.- 2. ILS Category II. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet.- 3. ILS Category III:

a. IIIA.-An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.

b. IIIB.-An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.

c. IIIC.-An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

**ILS PRM APPROACH-** An instrument landing system (ILS) approach conducted to parallel runways whose extended centerlines are separated by less than 4,300 feet and the parallel runways have a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

**IM-**

(See INNER MARKER.)

**IMC-**

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

**IMMEDIATELY-** Used by ATC or pilots when such action compliance is required to avoid an imminent situation.

**INCERFA Uncertainty Phase) [ICAO]-** A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

**INCREASE SPEED TO (SPEED)-**

(See SPEED ADJUSTMENT.)

**INERTIAL NAVIGATION SYSTEM-** An RNAV system which is a form of self-contained navigation.

(See Area Navigation/RNAV.)

**INFLIGHT REFUELING-**

(See AERIAL REFUELING.)

**INFLIGHT WEATHER ADVISORY-**

(See WEATHER ADVISORY.)

**INFORMATION REQUEST-** A request originated by an FSS for information concerning an overdue VFR aircraft.

**INITIAL APPROACH FIX-** The fixes depicted on instrument approach procedure charts that identify the beginning of the initial approach segment(s).

(See FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**INITIAL APPROACH SEGMENT-**

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**INITIAL APPROACH SEGMENT [ICAO]-** That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

**INLAND NAVIGATION FACILITY-** A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

**INNER MARKER-** A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach.

(See INSTRUMENT LANDING SYSTEM.)

(Refer to AIM.)



**INNER MARKER BEACON-**

(See INNER MARKER.)

**INREQ-**

(See INFORMATION REQUEST.)

**INS-**

(See INERTIAL NAVIGATION SYSTEM.)

**INSTRUMENT APPROACH-**

(See INSTRUMENT APPROACH PROCEDURE.)

**INSTRUMENT APPROACH PROCEDURE-** A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(Refer to FAR Part 91.)

(See AIM.)

a. U.S. civil standard instrument approach procedures are approved by the FAA as prescribed under Part 97 and are available for public use.

b. U.S. military standard instrument approach procedures are approved and published by the Department of Defense.

c. Special instrument approach procedures are approved by the FAA for individual operators but are not published in Part 97 for public use.

(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

**INSTRUMENT APPROACH PROCEDURE**

**[ICAO]-** A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.

**INSTRUMENT APPROACH PROCEDURES CHARTS-**

(See AERONAUTICAL CHART.)

**INSTRUMENT DEPARTURE PROCEDURE (DP)-**

A preplanned instrument flight rule (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. DP's provide transition from the terminal to the appropriate en route structure.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(Refer to AIM.)

**INSTRUMENT DEPARTURE PROCEDURE (DP) CHARTS-**

(See AERONAUTICAL CHART.)

**INSTRUMENT FLIGHT RULES-** Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

(See VISUAL FLIGHT RULES.)

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

(Refer to AIM.)

(See ICAO term INSTRUMENT FLIGHT RULES.)

**INSTRUMENT FLIGHT RULES [ICAO]-** A set of rules governing the conduct of flight under instrument meteorological conditions.

**INSTRUMENT LANDING SYSTEM-** A precision instrument approach system which normally consists of the following electronic components and visual aids:

a. Localizer.

(See LOCALIZER.)

b. Glideslope.

(See GLIDESLOPE.)

c. Outer Marker.

(See OUTER MARKER.)

d. Middle Marker.

(See MIDDLE MARKER.)

e. Approach Lights.

(See AIRPORT LIGHTING.)

(Refer to FAR Part 91.)

(See AIM.)

**INSTRUMENT METEOROLOGICAL CONDITIONS-** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

(See VISUAL METEOROLOGICAL CONDITIONS.)

(See INSTRUMENT FLIGHT RULES.)

(See VISUAL FLIGHT RULES.)

**INSTRUMENT RUNWAY**- A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.

(See ICAO term INSTRUMENT RUNWAY.)

**INSTRUMENT RUNWAY [ICAO]**- One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

a. **Nonprecision Approach Runway**-An instrument runway served by visual aids and a nonvisual aid providing at least directional guidance adequate for a straight-in approach.

b. **Precision Approach Runway, Category I**-An instrument runway served by ILS and visual aids intended for operations down to 60 m (200 feet) decision height and down to an RVR of the order of 800 m.

c. **Precision Approach Runway, Category II**-An instrument runway served by ILS and visual aids intended for operations down to 30 m (100 feet) decision height and down to an RVR of the order of 400 m.

d. **Precision Approach Runway, Category III**-An instrument runway served by ILS to and along the surface of the runway and:

1. Intended for operations down to an RVR of the order of 200 m (no decision height being applicable) using visual aids during the final phase of landing;

2. Intended for operations down to an RVR of the order of 50 m (no decision height being applicable) using visual aids for taxiing;

3. Intended for operations without reliance on visual reference for landing or taxiing.

Note 1: See Annex 10 Volume I, Part I, Chapter 3, for related ILS specifications.

Note 2: Visual aids need not necessarily be matched to the scale of nonvisual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

**INTEGRITY**- The ability of a system to provide timely warnings to users when the system should not be used for navigation.

**INTERMEDIATE APPROACH SEGMENT**-

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**INTERMEDIATE APPROACH SEGMENT [ICAO]**- That segment of an instrument approach procedure

between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, race track or dead reckoning track procedure and the final approach fix or point, as appropriate.

**INTERMEDIATE FIX**- The fix that identifies the beginning of the intermediate approach segment of an instrument approach procedure. The fix is not normally identified on the instrument approach chart as an intermediate fix (IF).

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**INTERMEDIATE LANDING**- On the rare occasion that this option is requested, it should be approved. The departure center, however, must advise the ATCSCC so that the appropriate delay is carried over and assigned at the intermediate airport. An intermediate landing airport within the arrival center will not be accepted without coordination with and the approval of the ATCSCC.

**INTERNATIONAL AIRPORT**- Relating to international flight, it means:

a. An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.

b. A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.

c. Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation.

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to IFIM.)

(See ICAO term INTERNATIONAL AIRPORT.)

**INTERNATIONAL AIRPORT [ICAO]**- Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out. **INTERNATIONAL CIVIL AVIATION ORGANIZATION [ICAO]**- A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

a. Regions include:

1. African-Indian Ocean Region
2. Caribbean Region

# L

## LAA-

(See LOCAL AIRPORT ADVISORY.)

## LAAS-

(See LOW ALTITUDE ALERT SYSTEM.)

**LAHSO-** An acronym for "Land and Hold Short Operation." These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flight-path.

**LAHSO-DRY-** Land and hold short operations on runways that are dry.

**LAHSO-WET-** Land and hold short operations on runways that are wet (but not contaminated).

**LAND AND HOLD SHORT OPERATIONS-** Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

**LANDING AREA-** Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.

(See ICAO term LANDING AREA.)

**LANDING AREA [ICAO]-** That part of a movement area intended for the landing or takeoff of aircraft.

**LANDING DIRECTION INDICATOR-** A device which visually indicates the direction in which landings and takeoffs should be made.

(See TETRAHEDRON.)

(Refer to AIM.)

**LANDING DISTANCE AVAILABLE [ICAO]-** The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

**LANDING MINIMUMS-** The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in FAR Part 91 with

respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

a. **Straight-in landing minimums.** A statement of MDA and visibility, or DH and visibility, required for a straight - in landing on a specified runway, or

b. **Circling minimums.** A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made and adequate visual reference to required visual cues is maintained.

(See STRAIGHT-IN LANDING.)

(See CIRCLE-TO-LAND MANEUVER.)

(See DECISION HEIGHT.)

(See MINIMUM DESCENT ALTITUDE.)

(See VISIBILITY.)

(See INSTRUMENT APPROACH PROCEDURE.)

(Refer to FAR Part 91.)

**LANDING ROLL-** The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

**LANDING SEQUENCE-** The order in which aircraft are positioned for landing.

(See APPROACH SEQUENCE.)

**LAST ASSIGNED ALTITUDE-** The last altitude/flight level assigned by ATC and acknowledged by the pilot.

(See MAINTAIN.)

(Refer to FAR Part 91.)

**LATERAL NAVIGATION (LNAV)-** A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

**LATERAL SEPARATION-** The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.

(See SEPARATION.)

## LDA-

(See LOCALIZER TYPE DIRECTIONAL AID.)

(See ICAO Term LANDING DISTANCE AVAILABLE.)

## LF-

(See LOW FREQUENCY.)

**LIGHTED AIRPORT-** An airport where runway and obstruction lighting is available.

(See AIRPORT LIGHTING.)

(Refer to AIM.)

**LIGHT GUN-** A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.

(Refer to AIM.)

**LOCALIZER-** The component of an ILS which provides course guidance to the runway.

(See INSTRUMENT LANDING SYSTEM.)

(Refer to AIM.)

(See ICAO term LOCALIZER COURSE.)

**LOCALIZER COURSE [ICAO]-** The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

**LOCALIZER OFFSET-** An angular offset of the localizer from the runway extended centerline in a direction away from the no transgression zone (NTZ) that increases the normal operating zone (NOZ) width. An offset requires a 50 foot increase in DH and is not authorized for CAT II and CAT III approaches.

**LOCALIZER TYPE DIRECTIONAL AID-** A NAV-AID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway.

(Refer to AIM.)

**LOCALIZER USABLE DISTANCE-** The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.

(Refer to AIM.)

**LOCAL AIRPORT ADVISORY [LAA]-** A service provided by flight service stations or the military at airports not serviced by an operating control tower. This service consists of providing information to arriving and departing aircraft concerning wind direction and speed, favored runway, altimeter setting, pertinent known traffic, pertinent known field conditions, airport taxi routes and traffic patterns, and authorized instrument approach procedures. This information is advisory in nature and does not constitute an ATC clearance.

(See AIRPORT ADVISORY AREA.)

**LOCAL TRAFFIC-** Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

(See TRAFFIC PATTERN.)

**LOCATOR [ICAO]-** An LM/MF NDB used as an aid to final approach.

Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

**LONGITUDINAL SEPARATION-** The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.

(See SEPARATION.)

(Refer to AIM.)

**LONG RANGE NAVIGATION-**

(See LORAN.)

**LORAN-** An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 kHz frequency band. Loran C and D operate in the 100-110 kHz frequency band.

(Refer to AIM.)

**LOST COMMUNICATIONS-** Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in Part 91. Radar controllers issue procedures for pilots to follow in the event of lost communications during a radar approach when weather reports indicate that an aircraft will likely encounter IFR weather conditions during the approach.

(Refer to FAR Part 91.)

(Refer AIM.)

**LOW ALTITUDE AIRWAY STRUCTURE-** The network of airways serving aircraft operations up to but not including 18,000 feet MSL.

(See AIRWAY.)

(Refer to AIM.)

**LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY-**

(See SAFETY ALERT.)

**LOW ALTITUDE ALERT SYSTEM-** An automated function of the TPX-42 that alerts the controller when a Mode C transponder - equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. If requested by the pilot, LAAS monitoring is

# M

## M-EARTS-

(See MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM.)

## MAA-

(See MAXIMUM AUTHORIZED ALTITUDE.)

**MACH NUMBER-** The ratio of true airspeed to the speed of sound; e.g., MACH .82, MACH 1.6.

(See AIRSPEED.)

**MACH TECHNIQUE [ICAO]-** Describes a control technique used by air traffic control whereby turbojet aircraft operating successively along suitable routes are cleared to maintain appropriate MACH numbers for a relevant portion of the en route phase of flight. The principle objective is to achieve improved utilization of the airspace and to ensure that separation between successive aircraft does not decrease below the established minima.

**MAHWP-** Missed Approach Holding Waypoint

## MAINTAIN-

a. Concerning altitude/flight level, the term means to remain at the altitude/flight level specified. The phrase "climb and" or "descend and" normally precedes "maintain" and the altitude assignment; e.g., "descend and maintain 5,000."

b. Concerning other ATC instructions, the term is used in its literal sense; e.g., maintain VFR.

**MAINTENANCE PLANNING FRICTION LEVEL-** The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, which represents the friction value below which the runway pavement surface remains acceptable for any category or class of aircraft operations but which is beginning to show signs of deterioration. This value will vary depending on the particular friction measurement equipment used.

**MAKE SHORT APPROACH-** Used by ATC to inform a pilot to alter his traffic pattern so as to make a short final approach.

(See TRAFFIC PATTERN.)

**MANDATORY ALTITUDE-** An altitude depicted on an instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

## MAP-

(See MISSED APPROACH POINT.)

**MARKER BEACON-** An electronic navigation facility transmitting a 75 MHz vertical fan or boneshaped radiation pattern. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot, both aurally and visually, that he is passing over the facility.

(See OUTER MARKER.)

(See MIDDLE MARKER.)

(See INNER MARKER.)

(Refer to AIM.)

## MARSA-

(See MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT.)

**MAWP-** Missed Approach Waypoint

**MAXIMUM AUTHORIZED ALTITUDE-** A published altitude representing the maximum usable altitude or flight level for an airspace structure or route segment. It is the highest altitude on a Federal airway, jet route, area navigation low or high route, or other direct route for which an MEA is designated in Part 95 at which adequate reception of navigation aid signals is assured.

**MAYDAY-** The international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested.

(See PAN-PAN-PAN.)

(Refer to AIM.)

## MCA-

(See MINIMUM CROSSING ALTITUDE.)

## MDA-

(See MINIMUM DESCENT ALTITUDE.)

## MEA-

(See MINIMUM EN ROUTE IFR ALTITUDE.)

**METEOROLOGICAL IMPACT STATEMENT-** An unscheduled planning forecast describing conditions expected to begin within 4 to 12 hours which may impact the flow of air traffic in a specific center's (ARTCC) area.

**METER FIX TIME/SLOT TIME-** A calculated time to depart the meter fix in order to cross the vertex at the ACLT. This time reflects descent speed adjustment and

any applicable time that must be absorbed prior to crossing the meter fix.

**METER LIST DISPLAY INTERVAL-** A dynamic parameter which controls the number of minutes prior to the flight plan calculated time of arrival at the meter fix for each aircraft, at which time the TCLT is frozen and becomes an ACLT; i.e., the VTA is updated and consequently the TCLT modified as appropriate until frozen at which time updating is suspended and an ACLT is assigned. When frozen, the flight entry is inserted into the arrival sector's meter list for display on the sector PVD/MDM. MLDI is used if filed true airspeed is less than or equal to freeze speed parameters (FSPD).

**METERING-** A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

**METERING AIRPORTS-** Airports adapted for metering and for which optimum flight paths are defined. A maximum of 15 airports may be adapted.

**METERING FIX-** A fix along an established route from over which aircraft will be metered prior to entering terminal airspace. Normally, this fix should be established at a distance from the airport which will facilitate a profile descent 10,000 feet above airport elevation [AAE] or above.

**METERING POSITION(S)-** Adapted PVD's/MDM's and associated "D" positions eligible for display of a metering position list. A maximum of four PVD's/MDM's may be adapted.

**METERING POSITION LIST-** An ordered list of data on arrivals for a selected metering airport displayed on a metering position PVD/MDM.

**MFT-**

(See METER FIX TIME/SLOT TIME.)

**MHA-**

(See MINIMUM HOLDING ALTITUDE.)

**MIA-**

(See MINIMUM IFR ALTITUDES.)

**MICROBURST-** A small downburst with outbursts of damaging winds extending 2.5 miles or less. In spite of its small horizontal scale, an intense microburst could induce wind speeds as high as 150 knots

(Refer to AIM.)

**MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (M-EARTS)-** An automated radar and radar beacon tracking system capable of

employing both short-range (ASR) and long-range (ARSR) radars. This microcomputer driven system provides improved tracking, continuous data recording, and use of full digital radar displays.

**MICROWAVE LANDING SYSTEM-** A precision instrument approach system operating in the microwave spectrum which normally consists of the following components:

a. Azimuth Station.

b. Elevation Station.

c. Precision Distance Measuring Equipment.

(See MLS CATEGORIES.)

**MIDDLE COMPASS LOCATOR-**

(See COMPASS LOCATOR.)

**MIDDLE MARKER-** A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment.

(See MARKER BEACON.)

(See INSTRUMENT LANDING SYSTEM.)

(Refer to AIM.)

**MID RVR-**

(See VISIBILITY.)

**MILES-IN-TRAIL-** A specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight.

**MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT-** A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the ATC system. It is used only for required IFR operations which are specified in letters of agreement or other appropriate FAA or military documents.

**MILITARY OPERATIONS AREA-**

(See SPECIAL USE AIRSPACE.)

**MILITARY TRAINING ROUTES-** Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots IAS.

(See IFR MILITARY TRAINING ROUTES.)

(See VFR MILITARY TRAINING ROUTES.)

**MINIMA-**

(See MINIMUMS.)

**MINIMUM CROSSING ALTITUDE-** The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA).

(See MINIMUM EN ROUTE IFR ALTITUDE.)

**MINIMUM DESCENT ALTITUDE-** The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glideslope is provided.

(See NONPRECISION APPROACH PROCEDURE.)

**MINIMUM EN ROUTE IFR ALTITUDE-** The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

(Refer to Part 91.)

(Refer to Part 95.)

(Refer to AIM.)

**MINIMUM FRICTION LEVEL-** The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, that represents the minimum recommended wet pavement surface friction value for any turbojet aircraft engaged in LAHSO. This value will vary with the particular friction measurement equipment used.

**MINIMUM FUEL-** Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur.

(Refer to AIM.)

**MINIMUM HOLDING ALTITUDE-** The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

**MINIMUM IFR ALTITUDES-** Minimum altitudes for IFR operations as prescribed in Part 91. These altitudes are published on aeronautical charts and prescribed in Part 95 for airways and routes, and in Part 97 for standard instrument approach procedures. If no applica-

ble minimum altitude is prescribed in FAR 95 or FAR 97, the following minimum IFR altitude applies:

a. In designated mountainous areas, 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

b. Other than mountainous areas, 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

c. As otherwise authorized by the Administrator or assigned by ATC.

(See MINIMUM EN ROUTE IFR ALTITUDE.)

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

(See MINIMUM CROSSING ALTITUDE.)

(See MINIMUM SAFE ALTITUDE.)

(See MINIMUM VECTORING ALTITUDE.)

(Refer to Part 91.)

**MINIMUM NAVIGATION PERFORMANCE SPECIFICATION-** A set of standards which require aircraft to have a minimum navigation performance capability in order to operate in MNPS designated airspace. In addition, aircraft must be certified by their State of Registry for MNPS operation.

**MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE-** Designated airspace in which MNPS procedures are applied between MNPS certified and equipped aircraft. Under certain conditions, non-MNPS aircraft can operate in MNPSA. However, standard oceanic separation minima is provided between the non-MNPS aircraft and other traffic. Currently, the only designated MNPSA is described as follows:

a. Between FL 285 and FL 420;

b. Between latitudes 27°N and the North Pole;

c. In the east, the eastern boundaries of the CTA's Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik;

d. In the west, the western boundaries of CTA's Reykjavik and Gander Oceanic and New York Oceanic excluding the area west of 60°W and south of 38°30'N.

**MINIMUM OBSTRUCTION CLEARANCE ALTITUDE-** The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 25 statute (22 nautical) miles of a VOR.

(Refer to Part 91.)

(Refer to Part 95.)

**MINIMUM RECEPTION ALTITUDE-** The lowest altitude at which an intersection can be determined.

(Refer to Part 95.)

**MINIMUM SAFE ALTITUDE-**

a. The minimum altitude specified in Part 91 for various aircraft operations.

b. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes will be identified as Minimum Sector Altitudes or Emergency Safe Altitudes and are established as follows:

1. Minimum Sector Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigation facility upon which the procedure is predicated. Sectors depicted on approach charts must be at least 90 degrees in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

(See ICAO term Minimum Sector Altitude.)

2. Emergency Safe Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in nonmountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigation facility upon which the procedure is predicated and normally used only in military procedures. These altitudes are identified on published procedures as "Emergency Safe Altitudes."

**MINIMUM SAFE ALTITUDE WARNING-** A function of the ARTS III computer that aids the controller by alerting him when a tracked Mode C- equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude.

(Refer to AIM.)

**MINIMUM SECTOR ALTITUDE [ICAO]-** The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 m (1,000 feet) above all obstacles located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

**MINIMUMS-** Weather condition requirements established for a particular operation or type of operation;

e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc.

(See LANDING MINIMUMS.)

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See VFR CONDITIONS.)

(See IFR CONDITIONS.)

(Refer to Part 91.)

(Refer to AIM.)

**MINIMUM VECTORING ALTITUDE-** The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures, and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published MEA along an airway or J-route segment. It may be utilized for radar vectoring only upon the controller's determination that an adequate radar return is being received from the aircraft being controlled. Charts depicting minimum vectoring altitudes are normally available only to the controllers and not to pilots.

(Refer to AIM.)

**MINUTES-IN-TRAIL-** A specified interval between aircraft expressed in time. This method would more likely be utilized regardless of altitude.

**MIS-**

(See METEOROLOGICAL IMPACT STATEMENT.)

**MISSED APPROACH-**

a. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to the MAP. The pilot may climb immediately to the altitude specified in the missed approach procedure.

b. A term used by the pilot to inform ATC that he is executing the missed approach.

c. At locations where ATC radar service is provided, the pilot should conform to radar vectors when provided by ATC in lieu of the published missed approach procedure.

(See MISSED APPROACH POINT.)

(Refer to AIM.)

**MISSED APPROACH POINT-** A point prescribed in each instrument approach procedure at which a missed



# O

**OBSTACLE-** An existing object, object of natural growth, or terrain at a fixed geographical location or which may be expected at a fixed location within a prescribed area with reference to which vertical clearance is or must be provided during flight operation.

**OBSTACLE FREE ZONE-** The OFZ is a three dimensional volume of airspace which protects for the transition of aircraft to and from the runway. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAID locations that are fixed by function. Additionally, vehicles, equipment, and personnel may be authorized by air traffic control to enter the area using the provisions of FAAO 7110.65, Para 3-1-5, *VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS*. The runway OFZ and when applicable, the inner-approach OFZ, and the inner-transitional OFZ, comprise the OFZ.

**a. Runway OFZ.** The runway OFZ is a defined volume of airspace centered above the runway. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway. The width is as follows:

**1.** For runways serving large airplanes, the greater of:

(a) 400 feet, or

(b) 180 feet, plus the wingspan of the most demanding airplane, plus 20 feet per 1,000 feet of airport elevation.

**2.** For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

(b) 250 feet for other runways serving small airplanes with approach speeds of 50 knots, or more.

(c) 120 feet for other runways serving small airplanes with approach speeds of less than 50 knots.

**b. Inner-approach OFZ.** The inner-approach OFZ is a defined volume of airspace centered on the approach area. The inner-approach OFZ applies only to runways with an approach lighting system. The inner-approach OFZ begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200

feet beyond the last light unit in the approach lighting system. The width of the inner-approach OFZ is the same as the runway OFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from the beginning.

**c. Inner-transitional OFZ.** The inner transitional surface OFZ is a defined volume of airspace along the sides of the runway and inner-approach OFZ and applies only to precision instrument runways. The inner-transitional surface OFZ slopes 3 (horizontal) to 1 (vertical) out from the edges of the runway OFZ and inner-approach OFZ to a height of 150 feet above the established airport elevation.

(Refer to AC 150/5300-13, Chapter 3.)

(Refer to FAAO 7110.65, Para 3-1-5, *VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS*.)

**OBSTRUCTION-** Any object/obstacle exceeding the obstruction standards specified by FAR Part 77, Subpart C.

**OBSTRUCTION LIGHT-** A light or one of a group of lights, usually red or white, frequently mounted on a surface structure or natural terrain to warn pilots of the presence of an obstruction.

**OCEANIC AIRSPACE-** Airspace over the oceans of the world, considered international airspace, where oceanic separation and procedures per the International Civil Aviation Organization are applied. Responsibility for the provisions of air traffic control service in this airspace is delegated to various countries, based generally upon geographic proximity and the availability of the required resources.

**OCEANIC DISPLAY AND PLANNING SYSTEM-** An automated digital display system which provides flight data processing, conflict probe, and situation display for oceanic air traffic control.

**OCEANIC NAVIGATIONAL ERROR REPORT-** A report filed when an aircraft exiting oceanic airspace has been observed by radar to be off course. ONER reporting parameters and procedures are contained in FAAO 7110.82, Monitoring of Navigational Performance In Oceanic Areas.

**OCEANIC PUBLISHED ROUTE-** A route established in international airspace and charted or described in flight information publications, such as Route

Charts, DOD Enroute Charts, Chart Supplements, NOTAM's, and Track Messages.

**OCEANIC TRANSITION ROUTE-** An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

**ODAPS-**

(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

**OFF COURSE-** A term used to describe a situation where an aircraft has reported a position fix or is observed on radar at a point not on the ATC-approved route of flight.

**OFFSHORE/CONTROL AIRSPACE AREA-** That portion of airspace between the U.S. 12 NM limit and the oceanic CTA/FIR boundary within which air traffic control is exercised. These areas are established to provide air traffic control services. Offshore/Control Airspace Areas may be classified as either Class A airspace or Class E airspace.

**OFF-ROUTE VECTOR-** A vector by ATC which takes an aircraft off a previously assigned route. Altitudes assigned by ATC during such vectors provide required obstacle clearance.

**OFFSET PARALLEL RUNWAYS-** Staggered runways having centerlines which are parallel.

**OFT-**

(See OUTER FIX TIME.)

**OM-**

(See OUTER MARKER.)

**OMEGA-** An RNAV system designed for long-range navigation based upon ground-based electronic navigational aid signals.

**ONE-MINUTE WEATHER-** The most recent one minute updated weather broadcast received by a pilot from an uncontrolled airport ASOS/AWOS.

**ONER-**

(See OCEANIC NAVIGATIONAL ERROR REPORT.)

**OPERATIONAL-**

(See DUE REGARD.)

**ON COURSE-**

a. Used to indicate that an aircraft is established on the route centerline.

b. Used by ATC to advise a pilot making a radar approach that his aircraft is lined up on the final approach course.

(See ON-COURSE INDICATION-COURSE INDICATION.)

**ON-COURSE INDICATION-** An indication on an instrument, which provides the pilot a visual means of determining that the aircraft is located on the centerline of a given navigational track, or an indication on a radar scope that an aircraft is on a given track.

**OPPOSITE DIRECTION AIRCRAFT-** Aircraft are operating in opposite directions when:

a. They are following the same track in reciprocal directions; or

b. Their tracks are parallel and the aircraft are flying in reciprocal directions; or

c. Their tracks intersect at an angle of more than 135°.

**OPTION APPROACH-** An approach requested and conducted by a pilot which will result in either a touch-and-go, missed approach, low approach, stop-and-go, or full stop landing.

(See CLEARED FOR THE OPTION.)

(Refer to AIM.)

**ORGANIZED TRACK SYSTEM-** A movable system of oceanic tracks that traverses the North Atlantic between Europe and North America the physical position of which is determined twice daily taking the best advantage of the winds aloft.

**ORGANIZED TRACK SYSTEM-** A series of ATS routes which are fixed and charted; i.e., CEP, NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

**OROCA-** An off-route altitude which provides obstruction clearance with a 1,000 foot buffer in non-mountainous terrain areas and a 2,000 foot buffer in designated mountainous areas within the United States. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar, or communications coverage.

**OTR-**

(See OCEANIC TRANSITION ROUTE.)

**OTS-**

(See ORGANIZED TRACK SYSTEM.)

**OUT-** The conversation is ended and no response is expected.

**OUTER AREA** (associated with Class C airspace)- Nonregulatory airspace surrounding designated Class

traffic. Usually under the direct supervision of an assistant manager for traffic management.

**TRAFFIC NO FACTOR-** Indicates that the traffic described in a previously issued traffic advisory is no factor.

**TRAFFIC NO LONGER OBSERVED-** Indicates that the traffic described in a previously issued traffic advisory is no longer depicted on radar, but may still be a factor.

**TRAFFIC PATTERN-** The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

a. **Upwind Leg-** A flight path parallel to the landing runway in the direction of landing.

b. **Crosswind Leg-** A flight path at right angles to the landing runway off its upwind end.

c. **Downwind Leg-** A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

d. **Base Leg-** A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

e. **Final Approach.** A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

(See STRAIGHT-IN APPROACH VFR.)

(See TAXI PATTERNS.)

(Refer to AIM.)

(Refer to FAR Part 91.)

(See ICAO term AERODROME TRAFFIC CIRCUIT.)

**TRAFFIC SITUATION DISPLAY (TSD)-** TSD is a computer system that receives radar track data from all 20 CONUS ARTCC's, organizes this data into a mosaic display, and presents it on a computer screen. The display allows the traffic management coordinator multiple methods of selection and highlighting of individual aircraft or groups of aircraft. The user has the option of superimposing these aircraft positions over any number of background displays. These background options include ARTCC boundaries, any stratum of en

route sector boundaries, fixes, airways, military and other special use airspace, airports, and geopolitical boundaries. By using the TSD, a coordinator can monitor any number of traffic situations or the entire systemwide traffic flows.

**TRANSCRIBED WEATHER BROADCAST-** A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots.

(Refer to AIM.)

**TRANSFER OF CONTROL-** That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.

(See ICAO term TRANSFER OF CONTROL.)

**TRANSFER OF CONTROL [ICAO]-** Transfer of responsibility for providing air traffic control service.

**TRANSFERRING CONTROLLER-** A controller/facility transferring control of an aircraft to another controller/facility.

(See ICAO term TRANSFERRING UNIT/CONTROLLER.)

**TRANSFERRING FACILITY-**

(See TRANSFERRING CONTROLLER.)

**TRANSFERRING UNIT/CONTROLLER [ICAO]-** Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note: See definition of accepting unit/controller.

**TRANSITION-**

a. The general term that describes the change from one phase of flight or flight condition to another; e.g., transition from en route flight to the approach or transition from instrument flight to visual flight.

b. A published procedure (DP Transition) used to connect the basic DP to one of several en route airways/jet routes, or a published procedure (STAR Transition) used to connect one of several en route airways/jet routes to the basic STAR.

(Refer to DP/STAR Charts.)

**TRANSITIONAL AIRSPACE-** That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

**TRANSITION POINT-** A point at an adapted number of miles from the vertex at which an arrival aircraft would normally commence descent from its en route

altitude. This is the first fix adapted on the arrival speed segments.

**TRANSMISSOMETER-** An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement source for determining runway visual range (RVR) and runway visibility value (RVV).

(See VISIBILITY.)

**TRANSMITTING IN THE BLIND-** A transmission from one station to other stations in circumstances where two-way communication cannot be established, but where it is believed that the called stations may be able to receive the transmission.

**TRANSPONDER-** The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System (ATCRBS) which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond.

(See INTERROGATOR.)

(Refer to AIM.)

(See ICAO term TRANSPONDER.)

**TRANSPONDER [ICAO]-** A receiver/transmitter which will generate a reply signal upon proper

interrogation; the interrogation and reply being on different frequencies.

**TRANSPONDER CODES-**

(See CODES.)

**TRSA-**

(See TERMINAL RADAR SERVICE AREA.)

**TSD-**

(See TRAFFIC SITUATION DISPLAY.)

**TURBOJET AIRCRAFT-** An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

**TURBOPROP AIRCRAFT-** An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

**TURN ANTICIPATION-** (maneuver anticipation).

**TVOR-**

(See TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION.)

**TWEB-**

(See TRANSCRIBED WEATHER BROADCAST.)

**TWO-WAY RADIO COMMUNICATIONS FAILURE-**

(See LOST COMMUNICATIONS.)

# W

## WA-

(See AIRMET.)

(See WEATHER ADVISORY.)

**WAKE TURBULENCE-** Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.

(See AIRCRAFT CLASSES.)

(See JET BLAST.)

(See VORTICES.)

(Refer to AIM.)

## WARNING AREA-

(See SPECIAL USE AIRSPACE.)

## WASS-

(See WIDE-AREA AUGMENTATION SYSTEM.)

**WAYPOINT-** A predetermined geographical position used for route/instrument approach definition, progress reports, published VFR routes, visual reporting points or points for transitioning and/or circumnavigating controlled and/or special use airspace, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.

**WEATHER ADVISORY-** In aviation weather forecast practice, an expression of hazardous weather conditions not predicted in the area forecast, as they affect the operation of air traffic and as prepared by the NWS.

(See SIGMET.)

(See AIRMET.)

**WHEN ABLE-** When used in conjunction with ATC instructions, gives the pilot the latitude to delay compliance until a condition or event has been reconciled. Unlike "pilot discretion," when instructions are prefaced "when able," the pilot is expected to seek the first opportunity to comply. Once a maneuver has been

initiated, the pilot is expected to continue until the specifications of the instructions have been met. "When able," should not be used when expeditious compliance is required.

## WIDE-AREA AUGMENTATION SYSTEM

**(WAAS)-** The WAAS is a satellite navigation system consisting of the equipment and software which augments the GPS Standard Positioning Service (SPS). The WAAS provides enhanced integrity, accuracy, availability, and continuity over and above GPS SPS. The differential correction function provides improved accuracy required for precision approach.

**WILCO-** I have received your message, understand it, and will comply with it.

**WIND SHEAR-** A change in wind speed and/or wind direction in a short distance resulting in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

## WING TIP VORTICES-

(See VORTICES.)

## WORDS TWICE-

a. As a request: "Communication is difficult. Please say every phrase twice."

b. As information: "Since communications are difficult, every phrase in this message will be spoken twice."

## WORLD AERONAUTICAL CHARTS-

(See AERONAUTICAL CHART.)

## WS-

(See SIGMET.)

(See WEATHER ADVISORY.)

## WST-

(See CONVECTIVE SIGMET.)

(See WEATHER ADVISORY.)